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(54) Title: NUCLEIC ACID SEQUENCES CHARACTERISTIC OF HEMATOPOIETIC STEM CELLS

(57) Abstract: The present invention relates to novel, isolated nucleic acid sequences that are characteristic of hematopoietic stem cells. The present invention further relates to full-length DNA sequences that encode for 7-transmembrane G-coupled protein receptors and the corresponding amino acid sequences. The present invention further relates to antibodies raised against the proteins consisting of the amino acid sequences.

NUCLEIC ACID SEQUENCES CHARACTERISTIC OF HEMATOPOIETIC STEM CELLS

BACKGROUND OF THE INVENTION

Hematopoietic Cells

The processes involved in the formation and differentiation of blood cells are collectively called hematopoiesis. There are various types of blood cells, such as red blood cells (erythrocytes), white blood cells (e.g., neutrophils, basophils, and eosinophils and monocytes), lymphocytes, and platelets. Red blood cells are involved in respiratory gas (oxygen and carbon dioxide) transport. White blood cells function to protect the body from infectious diseases and to provide immunity to certain diseases. Monocytes are involved in phagocytosis of pathogens and can develop into macrophages in tissues. Lymphocytes can mount immune responses by direct cell attack or by producing antibodies. Platelets are instrumental in blood clotting and can seal small tears in blood vessels; (Bondurant, M.C. and Koury, M.J. Origin and Development of Blood Cells, In: Lee, G.R., Foerster, J., Lukens, J., Paraskevas, F., Greer, J.P., and Rogers, G.M. (eds). *Wintrobe's Clinical Hematology, 3rd Edition*.

Early stage hematopoiesis involves the infrequent division of early stem cells to generate more stem cells, i.e. self-renewal. In an intermediate stage, the stem cells differentiate into progenitor cells that are irreversibly committed to produce only one or a few lineages of blood cells. In late stage hematopoiesis, the progenitor cells progressively proliferate and develop into terminally-differentiated and mature blood cells of a single lineage.

In humans, hematopoiesis appears to start in blood islands found in the fetal yolk sac during the first trimester of pregnancy. At about six weeks of gestation, hematopoiesis occurs predominantly in the fetal liver. In the beginning of the midtrimester, the bone marrow becomes the main site for hematopoiesis.

Hematopoietic stem cells are operationally defined as cells capable of self-renewal, and of differentiating into all types of mature blood cells. As a result, hematopoietic stem cells are capable of providing long-term hematopoietic reconstitution of ablated animals, including the repopulation of all myeloid and lymphoid cell lines.

Hematopoietic stem cells are morphologically small to medium mononuclear

(lymphocyte-like) cells. They have a large nuclear/cytoplasmic ratio, with prominent nucleoli and non-basophilic and agranular cytoplasm.

As stem cells reach the intermediate stage of hematopoiesis, they have less capacity for self-renewal and greater capacity for differentiation. Eventually, they become committed to develop into mature blood cells of a single lineage.

The late stage of hematopoiesis involves the formation of mature blood cells. The mature blood cells are not mitotic, and do not self-renew or differentiate. Each particular type of mature blood cell is ultimately committed, terminally differentiated, and limited to a single lineage.

Stromal Cells

In order to function properly, hematopoietic stem cells must be in intimate contact with stromal cells (Dexter, T.M., L.H., Spooncer, E., Heyworth, C.M., Daniel, C.P., Schiro, R., Chang, J., and Allen, T.D. 1990. "Stromal Cells in Hematopoiesis" in: Bock, G., Marsh, J. (eds), *Symposium on Molecular Control of Haemopoiesis* held at Ciba Foundation, London, John Wiley & Sons Ltd., Chichester, p 76-95). Stromal cells are produced in various organs where stem cells exist. Direct cell contact with stromal cells inhibits stem cells from differentiating and promotes self-renewal (Schofield, R. and Dexter, T.M. 1985. "Studies on the Self-Renewal Ability of CFU-S Which Have Been Serially Transferred in *Long Term* Culture or *In Vivo*," *Leukemia Res.* 9:305-313; Dexter, T.M., Spooncer, E., Simons, P., and Allen, T.D. 1984. "long-term Marrow Culture: An Overview of Techniques and Experience," in: Wright, D.G., Greenberger, J.S. (eds), *Long-Term Bone Marrow Culture*, Alan R. Liss, Inc., New York, p 57-96).

Seven-Transmembrane G-Protein Coupled Receptors

A variety of extracellular stimuli transmit signals through seven-transmembrane G-protein coupled receptors (7TM-GPCRs). Over 1000 members of this family of receptors have been identified and some have served as targets for developing therapeutic agents that block or enhance their function. Members of this receptor family are characterized by an extracellular N-terminus, seven membrane-spanning domain and a cytoplasmic C-terminus.

The primary function of 7TM-GPCRs is to identify a specific signaling molecule or ligand from a large array of chemically diverse extracellular substances. Once identified, these cell-surfaced receptors can activate an effector-signaling cascade that triggers an intracellular

response and eventually a biological effect.

7TM-GPCRs undergo a conformational change upon binding with a ligand. The conformational change allows the receptors to associate with, and activate, heterotrimeric G-proteins. The G-proteins bind guanine and act to modulate intracellular signal pathways by interacting with a variety of effector molecules. The signals transduced lead to the regulation of important biological processes such as cell growth and differentiation. Disregulated cellular signaling through 7TM-GPCRs can contribute to human disease.

Objectives

A better understanding of stem cells, stromal cells, and their interactions would lead to a better understanding of aberrant regulation and diseases affecting the blood system, which, in turn, would lead to cures of such aberrant regulation and diseases. In addition, it is desirable to gain further insight into the molecular mechanisms underlying the different stages of hematopoietic development. It is also desirable to identify novel human nucleic acid molecules that may be involved in the molecular biology of hematopoiesis or play a role in hematopoietic differentiation or lineage commitment of cells that express such nucleic acid molecules. Additional information on the molecular biology of hematopoiesis is desired in order to improve the transplant therapeutic strategies for the treatment of acquired and genetic disorders of the hematopoietic systems.

7TM-GPCRs are involved in cellular signaling. Increased knowledge of 7TM-GPCRs would lead to a better understanding of cellular signaling. Cellular signaling leads to the regulation of important biological processes such as growth and differentiation. Additional information on the regulation of biological processes such as growth and differentiation would be very beneficial in developing treatments for various human diseases.

SUMMARY OF THE INVENTION

These and other objects as will be apparent to those having ordinary skill in the art have been met by providing an isolated nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO: 1 to SEQ ID NO: 387. The invention further includes vectors and host cells comprising such nucleic acid molecules.

DETAILED DESCRIPTION OF THE INVENTION

Definitions

The nucleic acid molecules of the invention are selectively expressed in hematopoietic stem cells or stromal cells. For the purposes of this specification, hematopoietic stem cells are cells that are capable of differentiating at least into erythrocytes, neutrophils, basophils, eosinophils, monocytes, lymphocytes, and platelets. Mature hematopoietic cells are progenitor cells that are committed to a particular type of hematopoietic cell or to fully differentiated hematopoietic cells.

Nucleic acid molecules include both DNA and RNA. A nucleic acid molecule is isolated if it is removed from a cell, such as, for example, the cell in which the nucleic acid molecule is naturally found, and at least some of the other nucleic acid molecules that are found in the cell.

Preferably, the nucleic acid molecule is purified. A nucleic acid molecule of the invention is considered purified if it is substantially free from other nucleic acid molecules that are found naturally in the same cell as the nucleic acid molecule of the invention.

A nucleic acid molecule of the invention is considered substantially free from other nucleic acid molecules if the nucleic acid molecule of the invention constitutes at least about 50%, preferably at least about 60%, more preferably at least about 70%, most preferably at least about 80%, and optimally at least about 90%, or even higher, such as about 95%, about 98%, or even about 99% of the total weight of a mixture of nucleic acid molecules.

The nucleic acid molecule may consist of the nucleotides shown in a particular sequence, i.e., not contain any nucleotides other than those shown in SEQ ID NO: 1-387. Alternatively, the nucleic acid molecule may comprise the nucleotides shown in a particular sequence, i.e., include the nucleotides shown in SEQ ID NO: 1-387 as well as nucleotides other than those shown in the SEQ ID NO: 1-387 at either, or both, the 5' or the 3' end of the nucleic acid molecule. Such other nucleotides may include, for example, regulatory elements, such as transcription factors, translation factors, polyadenylation signals, transcription termination sequences, translation termination sequences, transport signals, promoters, transcription enhancers, activation sequences, and the like.

For example, the nucleic acid molecule may be incorporated into a vector. In this specification, a vector is a nucleic acid molecule that comprises an isolated nucleic acid molecule

according to the invention, and that is useful for transfecting cells. The vector may be linear or circular, i.e. a plasmid. Some examples of vectors include cloning vectors and expression vectors.

The invention also includes the nucleic acid molecule shown in SEQ ID NO: 386. This nucleic acid molecule is a full reading frame that encodes a 7TM-GPCR when expressed. (SEQ NO ID: 389)

In addition, the invention includes the nucleic acid molecule shown in SEQ ID NO: 387. This nucleic acid molecule represents the full reading frame of SEQ ID NO: 173. The reading frame for SEQ ID NO: 387 encodes a 7TM-GPCR when expressed. (SEQ ID NO: 388)

The invention also includes antibodies generated against the proteins represented by SEQ. ID NO: 388 or SEQ. ID NO: 389. The antibodies may be polyclonal or monoclonal.

Northern analysis of the nucleic acid molecule of SEQ ID NO: 386 reveals wide expression in the tissue of the brain, heart, lung and kidneys, as well as murine thymus and whole bone marrow.

Northern analysis reveals the nucleic acid molecule of SEQ ID NO: 387 to be expressed in murine bone marrow, thymus and a monoblastic leukemia cell line. The nucleic acid of SEQ ID NO. 387 appears to be restricted to hematopoietic tissues. Further studies reveal that the nucleic acid of SEQ ID NO. 387 is expressed in myeloblastic leukemia (M1) cells.

The invention further includes host cells comprising a nucleic acid molecule according to the invention. The nucleic acid molecule may be in a vector that has been transfected into the host cell, such as a cloning vector or an expression vector. Alternatively, the nucleic acid molecule may be incorporated into the genome of the host cell. In either event, the host cell preferably replicates or expresses the nucleic acid molecule, and more preferably both replicates and expresses the nucleic acid molecule.

The host cells may be used to express the polypeptides and proteins encoded by the nucleic acid molecules of the invention. Further, antibodies may be raised against epitopes of the expression products.

Equivalents

The nucleic acid molecules of the invention include homologs of the nucleic acid sequences provided in this application. In the present specification, the sequence of a first

nucleotide sequence is considered homologous to that of a second nucleotide sequence if the first sequence is at least about 60% identical, preferably at least about 70% identical, and more preferably at least about 75% identical to the second nucleotide sequence. In the case of nucleotide sequences having high homology, the first sequence is at least about 80%, preferably at least about 85%, more preferably at least about 95%, and optimally at least about 98% or 99% identical to the second nucleotide sequence.

In order to compare a first nucleic acid sequence to a second nucleic acid sequence for the purpose of determining homology, the sequences are aligned so as to maximize the number of identical nucleotides. The sequences of homologous nucleic acid molecules can usually be aligned by visual inspection. If visual inspection is insufficient, the nucleic acid molecules may be aligned in accordance with the methods described by George, D.G. et al., in *Macromolecular Sequencing and Synthesis, Selected Methods and Applications*, pages 127-149, Alan R. Liss, Inc. (1988), such as formula 4 at page 137 using a match score of 1, a mismatch score of 0, and a gap penalty of -1.

An alternative test for homology of two nucleic acid sequences is whether they hybridize under normal hybridization conditions, preferably under stringent hybridization conditions.

The term "stringent conditions," as used herein, is equivalent to "high stringent conditions" and "high stringency." High stringent conditions are defined in a number of ways. In one definition, stringent conditions are selected to be about 25°C lower than the thermal melting point (T_m) for DNA or RNA hybrids longer than 70 bases, and 5°C lower than the T_m for shorter oligonucleotides (11-70 bases long). The T_m is the temperature (under defined ionic strength and pH) at which 50% of the target sequence hybridizes to a perfectly matched sequence. Typical stringent conditions are those in which the salt concentration is about 0.02 M at pH 7.0 and the temperature is calculated as described below.

The following equations are used to calculate the T_m of the following hybrids at pH 7.0: For DNA hybrids of more than 70 nucleotides: $T_m = 81.5^\circ\text{C} + 16.6 \log [M^+] + 41(\%G + C) - 0.63(\% \text{ formamide}) - (600/L)$. For DNA:RNA hybrids of more than 70 nucleotides: $T_m = 79.8^\circ\text{C} + 18.5 \log[M^+] + 58.4(\%G + C) + 11.8(\%G + C)^2 - 0.5(\% \text{ formamide}) - 820/L$. For DNA or RNA hybrids of 14-70 bases: $T_m = 81.5^\circ\text{C} + 16.6 \log [M^+] + 41(\%G + C) - 600/L$. For DNA or RNA hybrids of 11-27 bases (based on 1 M Na^+ and in the complete absence of organic solvents): $T_m = 4(\%G + C) + 2(\%A + T/U)$.

Where

T_m = thermal melting temperature;

%G+C = percentage of total guanine and cytosine bases in the DNA, usually

30% -75% (50% is ideal), and expressed as a mole fraction;

$[M^+]$ = monovalent cation concentration, usually sodium, expressed in molarity in the range of 0.01 M to 0.4 M; and

L = length of the hybrid in base pairs;

%A+T = mole fraction of total adenine and thymine bases in the DNA.

%A+T/U = mole fraction of total adenine and thymine or uracil bases in the DNA or RNA.

Some examples of "stringent conditions" useful in the present invention include overnight incubation at a hybrid temperature determined as described above in a solution comprising: 20% formamide, 5 x SSC (750 mM NaCl, 75 mM trisodium citrate), 50 mM sodium phosphate (pH 7.6), 5 x Denhardt's solution, 10% dextran sulfate, and 20 μ g/ml denatured, sheared salmon sperm DNA. Alternatively, the stringent conditions are characterized by a hybridization buffer comprising 30% formamide in 5 x SSPE (0.75 M NaCl, 0.05 M NaPO₄, pH 7.7, 5 mM EDTA) buffer at a temperature determined as described above and subsequent washing at the same temperature with 0.2 x SSPE. Preferably, stringent conditions involve the use of a hybridization buffer comprising 50% formamide in 5 x SSPE at a temperature determined as described above and washing at the same temperature with 0.2 x SSPE (0.03 M NaCl, 2 mM NaPO₄, pH 7.7, 0.2 mM EDTA).

SEQ ID NOS: 1-387 were derived from murine hematopoietic stem cells (SEQ ID NO: 1-248), or stromal cells (SEQ ID NO: 249-387). The nucleic acid molecules of the invention further include homologous sequences found in humans in accordance with the definitions of homology described above. The human sequences are derived from the same types of cells as the corresponding murine sequences, share homology, generally high homology, with the corresponding murine sequences, and are useful in the same ways as the corresponding murine sequences.

Human Equivalents

Positive human cDNA clones may be isolated and sequence analysis of the clones may be performed by methods known in the art. Sequence comparisons may be carried out by screening several databases, e.g., dbEST, GenBank, Swiss-Prot, and EMBL.

The human nucleic acid molecules screened by the methods described above may be from human cDNA or genomic libraries, preferably derived from hematopoietic cells or cell lineages. Particularly useful cells for this purpose include hematopoietic cells that are CD34+, CD38-, lin-, or any combination thereof. Such cells may be enriched for hematopoietic stem cells from bone marrow cells by standard methods well known in the art by which nucleated non-adherent cells are prepared to provide a rich source of hematopoietic stem cells.

Stromal cells may also be prepared from bone marrow cells by a similar process, this time selecting adherent cells. Larger numbers of stromal cells may also be prepared from umbilical cord blood. Another commonly used and readily available source of human cDNAs is the commercially available human liver cDNA libraries.

Utility

The nucleic acid molecules of the invention are useful in numerous ways. For example, since hematopoietic stem cells selectively express the nucleic acid molecules of the invention, assays that are capable of determining the presence of the nucleic acid molecules in a sample are capable of distinguishing such cells from most, if not all, other types of cells, such as mature hematopoietic cells and non-hematopoietic cells.

Thus, if a nucleic acid molecule of the invention, or its complement, is expressed in a cell, the cell is considered to have a high likelihood of being a hematopoietic stem cell. Methods for determining whether a nucleic acid molecule is expressed in a cell are known in the art. For example, high molecular weight DNA from a cell can be restricted with restriction enzymes and fractionated by agarose gel electrophoresis. The restricted fragments are denatured, transferred to a nitrocellulose filter, and immobilized (Southern transfer). A labeled nucleic acid molecule of the invention or its complement is prepared and used as a probe. The presence of the labeled probe hybridized to an immobilized nucleic acid molecule indicates the presence of the nucleic acid molecule in the sample.

Alternatively, the labeled probe is applied directly to fixed, denatured, and dehydrated

hematopoietic cells to localize the cellular transcripts in the cells and to identify the cell types that transcribe the mRNA of interest (*in situ* hybridization). Examples of these methods are described by Ausubel, F.M. et al. (eds), Current Protocols in Molecular Biology, John Wiley & Sons, Inc., New York (1999).

Nucleic acid molecules of the invention can be labeled by methods known in the art. The label may be a radioactive atom, an enzyme, or a chromophoric moiety.

Methods for labeling oligonucleotide probes have been described, for example, by Leary et al., Proc. Natl. Acad. Sci. USA, 80:4045 (1983); Renz and Kurz, Nucl. Acids Res. 12:3435 (1984); Richardson and Gumpert, Nucl. Acids Res., 11:6167 (1983); Smith et al., Nucl. Acids Res. 13:2399 (1985); Meinkoth and Wahl, Anal. Biochem., 138:267 (1984); and Ausubel, F.M. et al. (Eds.) Current Protocols in Molecular Biology, John Wiley & Sons, Inc., New York, 1999.

The label may be radioactive. Some examples of useful radioactive labels include ^{32}P , ^{125}I , ^{131}I , ^{35}S , ^{14}C , and ^3H . Uses of radioactive labels have been described in U.K. 2,034,323, U.S. 4,358,535, and U.S. 4,302,204.

Alternatively, the label may be non-radioactive. Some examples of non-radioactive labels include enzymes, chromophores, atoms and molecules detectable by electron microscopy, and metals detectable by their magnetic properties.

Some useful enzymatic labels include enzymes that cause a detectable change in a substrate. These useful enzymes and their substrates include, for example, horseradish peroxidase (pyrogallol and o-phenylenediamine), beta-galactosidase (fluorescein beta-D-galactopyranoside), and alkaline phosphatase (5-bromo-4-chloro-3-indolyl phosphate/nitro blue tetrazolium). The use of enzymatic labels have been described in U.K. 2,019,404, EP 63,879, in Ausubel, F.M. et al. (Eds.), Current Protocols in Molecular Biology, John Wiley & Sons, Inc., New York (1999), and by Rotman, Proc. Natl. Acad. Sci. USA 47:1981-1991 (1961).

Useful chromophores include, for example, fluorescent, chemiluminescent, and bioluminescent molecules, as well as dyes. Some specific chromophores useful in the present invention include, for example, fluorescein, rhodamine, Texas red, phycoerythrin, umbelliferone, luminol.

The labels may be conjugated to the nucleotide probe by methods that are well known in the art. The labels may be directly attached through a functional group on the probe. The probe either contains or can be caused to contain such a functional group. Some examples of suitable

functional groups include, for example, amino, carboxyl, sulfhydryl, maleimide, isocyanate, isothiocyanate.

The nucleic acid molecules of the invention are also useful in ways other than those described above. For example, the nucleic acid molecules are useful in identifying nucleic acid molecules that comprise one or more of the sequences in SEQ. ID NO 1 to SEQ. ID NO 387 and additional nucleotides at the 5' end, the 3' end, or both the 5' and a 3' ends. Such longer nucleic acid molecules express proteins that are involved in hematopoiesis. Such proteins are important to improve the understanding of hematopoiesis, and may be important in treating conditions characterized by abnormal hematopoiesis.

Methods to identify longer nucleic acid molecules that comprise one or more of SEQ. ID NO: 1 to SEQ. ID NO: 385 are known in the art. For example, a suitable method is the polymerase chain reaction (PCR) method described by Saiki et al. in *Science* 239:487 (1988); Mullis et al. in U.S. Patent No. 4,683,195; and Ausubel, F.M. et al. (eds), *Current Protocols in Molecular Biology*, John Wiley & Sons, Inc., New York (1999).

For extension of the sequence of the nucleic acid of the present invention, the RACE (rapid amplification of cDNA ends) method for 5'-end extension is particularly useful. See, for example, Frohman, "RACE" in *PCR Protocols: A Guide to methods and Applications* (Innes, M.A. ed.) Academic Press, San Diego, pp28-38 (1990). Briefly, primers oriented in the 5' and 3' directions are chosen to produce overlapping cDNAs when fully extended. The overlapping 5' and 3' end RACE products are ligated to produce longer nucleic acid molecules, such as full length cDNAs and genes. See, for example, Frohman, M.A. "RACE: Rapid Amplification of cDNA Ends" in *PCR Protocols, A Guide to Methods and Applications*. Innis, M.A. et al. (eds), Academic Press, Inc., New York (1990).

In the PCR methods described above, nucleic acid molecules of the invention are used as primers for PCR amplification. The oligonucleotide primers may be synthesized by methods known in the art. Suitable methods include those described by Caruthers in *Science* 230:281-285 (1985) and *DNA Structure, Part A: Synthesis and Physical Analysis of DNA*, Lilley, D.M.J. and Dahlberg, J.E. (eds), *Methods Enzymol.*, 211, Academic Press, Inc., New York (1992). The amplified fragment may be cloned, sequenced and further amplified to obtain longer nucleic acid molecules that comprise one or more of the sequences in SEQ. ID NO: 1 to SEQ. ID NO: 385. It is convenient to amplify the clones in the lambda-gt10 or lambda-gt11 vectors using lambda-gt10

or lambda-gt11-specific oligomers as the amplimers (available from Clontech, Palo Alto, California).

The labeled murine probes can be used by various methods known in the art to screen human hematopoietic tissues or cells. Such screening can, for example, show where and how the human gene is being expressed and transcribed (northern blot analysis). See Sambrook, J. et al. (eds), *Molecular Cloning*, Second Edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York (1989) and Ausubel, F.M. et al. (eds), *Current Protocols in Molecular Biology*, John Wiley & Sons, New York (1999).

The murine nucleic acid molecules of the invention may also be used as probes and used to isolate the corresponding human homolog by methods known in the art. For example, the murine nucleic acid molecules may be used as PCR primers to screen a human DNA (cDNA or genomic) library. The PCR methods described above, such as RACE, are suitable for this purpose. See, for example, Zeng et al., *Biochem. Biophys. Res. Comm.*, 236, 389-395 (1997), and Morita et al., *Biochem. Biophys. Res. Comm.*, 248, 307-314 (1998). See also Buanne et al., *Genomics* 51, 233-242 (1998).

Alternatively, the nucleic acid molecules may be immobilized and used to capture human nucleic acid molecules having homology, preferably high homology, as described above from an appropriate human nucleic acid library. Methods for using nucleic acid molecules to immobilize and capture homologous nucleic acid molecules are known in the art. The conditions used in the capture procedure are highly stringent, as described above.

Another utility of the nucleic acid molecules of the invention is the mapping of DNA sequences specific to hematopoietic stem cells to chromosomes. The sequences may be mapped to a particular chromosome, or to a specific region of the chromosome by techniques known in the art. An example of a useful technique is fluorescent in situ hybridization (FISH) analysis. See, for example, Ausubel, F.M. et al. (eds), *Current Protocols in Molecular Biology*, John Wiley & Sons, Inc., New York (1999); Verma et al. (1988) *Human Chromosomes: A Manual of Basic Techniques*, Pergamon Press, New York, and U.S. Patent 5,447,841 of Gray et al.

The DNA of SEQ. ID NOS: 386 and 387 and the proteins corresponding to them in SEQ. ID NOS: 388 and 389 may be used to identify the types of cells in which they are expressed. These sequences can also be used to investigate cellular signaling between 7TM-GPCRs. Furthermore, the sequences may be helpful in the identification of new 7TM-GPCRs.

Additionally, the DNA of SEQ ID NOS. 386 and 387 encode for 7TM-GCPRs. 7TM-GCPRs are expressed on stem cells. Therefore, the DNA of SEQ ID NOS. 386 and 387 could serve as markers that can be used to sort stem cells. Sorted stem cells may be therapeutically useful, for example, in transplantations.

The 7TM-GCPRs corresponding to the DNA of SEQ ID NOS. 386 and 387 are expressed in myeloblastic leukemia (M1) cells, and play a role in leukemia. Hence, the development of inhibitors to the 7TM-GCPRs that correspond to the DNA of SEQ ID NOS. 386 and 387 provide a promising treatment to inhibit leukemia progression. This inhibition can occur via growth or differentiation inhibition.

In addition, the DNA of SEQ ID NOS. 386 and 387 and the proteins corresponding to them in SEQ. ID. NOS 388 and 389 may be used in the development of inhibitors of leukemic progression. The 7TM-GPCR corresponding to SEQ ID NOS. 386-389 is expressed in leukemia cells, particularly, myeloblastic leukemia (M1) cells. Therefore, development of inhibitors to the 7TM-GPCR will also inhibit leukemic progression. The inhibition of leukemic cells can occur via agonists or antagonists of the 7TM-GPCR that may induce differentiation as an anti-leukemia therapy.

Antisense Oligonucleotides

The present invention provides antisense or sense oligonucleotides capable of binding to a target mRNA or to the sequence in the double stranded DNA helix of SEQ ID NOS. 386 and 387.

Antisense or sense oligomers according to the present invention, comprise a fragment of the coding region of the cDNA of SEQ ID NOS. 386 and 387. Such a fragment generally comprises at least 14 nucleotides, preferably about 14 to 30 nucleotides. The ability to create an antisense or sense oligonucleotide based upon a cDNA sequence for a given protein is known in the prior art and described in, for example, Stein and Cohen, *Cancer Res.* 48:2659, 1988 and van der Krol, et al., *BioTechniques* 6:958, 1988.

Binding of antisense or sense oligonucleotides to target nucleic acid sequences results in the formation of complexes that block translation (RNA) or transcription(DNA) by one of several means, including enhanced degradation of the duplexes, premature termination of transcription or translation, or by other means. The antisense oligonucleotides thus may be used to block expression of the proteins of SEQ ID NOS. 388 and 389 which correspond to the nucleic acids of

SEQ ID NOS. 386 and 387.

The antisense or sense oligonucleotides of the present invention further comprise oligonucleotides having modified sugar-phosphodiester backbones or other sugar linkages, which resist enzymatic degradation but retain sequence specificity to be able to target nucleotide sequences.

Antisense or sense oligonucleotides of the present invention may be introduced into a cell containing the target nucleic acid sequence by any gene transfer method, including for example, CaPO_4 -mediated DNA transfection, electroporation, or by using gene transfer vectors. Antisense or sense oligonucleotides of the present invention also may be introduced into a cell containing the target nucleotide sequence by formation of a conjugate with a ligand binding molecule, for example, cell surface receptors, growth factors, other cytokines or ligands that bind cell surface receptors.

Isolated and purified DNA of SEQ ID NOS. 386 and 387, or fragments thereof, may also be useful themselves as therapeutic agents in regulating the corresponding proteins of SEQ ID NOS. 388 and 389, which belong to the family of 7TM-GCPRs.

Antibodies

The present invention provides antibodies and/or functional equivalents of antibodies raised against the proteins represented by the amino acid sequences of SEQ. ID NO: 388 and SEQ. ID NO: 389. An antibody is defined as a protein that binds specifically to an epitope. The antibody may be polyclonal or monoclonal. The invention further includes isolating neutralizing antibodies that specifically recognize and bind to the proteins and functional analogs of the invention.

For this application, the functional equivalent of an antibody is preferably a chimerized or humanized antibody. A chimerized antibody comprises the variable region of a non-human antibody and the constant region of a human antibody. A humanized antibody comprises the hypervariable region (CDRs) of a non-human antibody. The variable region other than the hypervariable region, e.g. the framework variable region, and the constant region of a humanized antibody are those of a human antibody.

Suitable variable and hypervariable regions of non-human antibodies may be derived from antibodies produced by any non-human mammal in which monoclonal antibodies are made.

Suitable examples of mammals other than humans include, for example, rabbits, rats, mice, horses, goats, or primates. Preferably, the antibodies are human antibodies. The antibodies may be produced in a transgenic mouse. An example of such a mouse is the so-called XenoMouse™ (Abgenix, Fremont, CA) described by Green, LL., "Antibody Engineering Via Genetic Engineering of the Mouse: XenoMouse Stains are a Vehicle for the Facile Generation of Therapeutic Human Monoclonal Antibodies," *J. Immunol. Methods*, 10;231(1-2):11-23(1999).

Functional equivalents of antibodies further include fragments that have binding characteristics that are the same as, or are comparable to, those of the whole antibody. Suitable fragments of the antibody include any fragment that comprises a sufficient portion of the hypervariable (i.e. complementary determining) region to bind specifically, and with sufficient affinity, to 7TM-GPCR.

The preferred fragments are single chain antibodies. Single chain antibodies are polypeptides that comprise at least the variable region of the heavy chain of the antibody and the variable region of the light chain, with or without an interconnecting linker.

The antibodies and functional equivalents may be members of any class of immunoglobins, such as: IgG, IgM, IgA, IgD or IgE, and the subclass thereof. The functional equivalents may also be equivalents of combinations of any of the above classes and subclasses.

Methods for making monoclonal antibodies include, for example, the immunological method described by Kohler and Milstein in *Nature* 256:495-497 (1975) and by Campbell in "Monoclonal Antibody Technology, The Production and Characterization of Rodent and Human Hybridomas" in Burdon, et al., Eds, *Laboratory Techniques in Biochemistry and Molecular Biology*, Volume 13, Elsevier Science Publishers, Amsterdam (1985). The recombinant DNA method described by Huse, et al. in *Science* 246:1275-1281 (1989) is also suitable.

Briefly, in order to produce monoclonal antibodies, a host mammal is inoculated with a receptor or a fragment of a receptor, as described above, and then, optionally, boosted. In order to be useful, the receptor fragment must contain sufficient amino acid residues to define the epitope of the molecule being detected. If the fragment is too short to be immunogenic, it may be conjugated to a carrier molecule. Some suitable carrier molecules include keyhole limpet hemocyanin and bovine serum albumin. Conjugation may be carried out by methods known in the art. One such method is to combine a cysteine residue of the fragment with a cysteine residue on the carrier molecule.

Spleens are collected from the inoculated mammals a few days after the final boost. Cell suspensions from the spleen are fused with a tumor cell. The resulting hybridoma cells that express the antibodies are isolated, grown and maintained in culture.

Suitable monoclonal antibodies as well as growth factor receptor tyrosine kinases for making them are also available from commercial sources, for example, from Upstate Biotechnology, Santa Cruz Biotechnology of Santa Cruz, California, Transduction Laboratories of Lexington, Kentucky, R&D Systems Inc of Minneapolis, Minnesota, and Dako Corporation of Carpinteria, California.

Methods for making chimeric and humanized antibodies are also known in the art. For example, methods for making chimeric antibodies include those described in U.S. patents by Boss (Celltech) and by Cabilly (Genentech). See U.S. Patent Nos. 4,816,397 and 4,816,567, respectively. Methods for making humanized antibodies are described, for example, in Winter, U.S. Patent No. 5,225,539.

Antibodies or antibody fragments can also be isolated from antibody phage libraries generated using techniques, for example, described in McCafferty et al., *Nature*, 348: 552-554 (1990), using the antigen of interest to select for a suitable antibody or antibody fragment. Clackson et al., *Nature*, 352: 624-628 (1991) and Marks et al., *J. Mol. Biol.*, 222: 581-597 (1991) describe the isolation of murine and human antibodies, respectively, using phage libraries. Subsequent publications describe the production of high affinity (nM range) human antibodies by chain shuffling (Mark et al., *Bio/Technol.* 10: 779-783 (1992)), as well as combinatorial infection and in vivo recombination as a strategy for constructing very large phage libraries (Waterhouse et al., *Nuc. Acids Res.*, 21: 2265-2266 (1993)). These techniques are viable alternatives to traditional monoclonal antibody hybridoma techniques for isolation of "monoclonal" antibodies (especially human antibodies).

The preferred method for the humanization of antibodies is called CDR-grafting. In CDR-grafting, the regions of the mouse antibody that are directly involved in binding to antigen, the complementarity determining region or CDRs, are grafted into human variable regions to create "reshaped human" variable regions. These fully humanized variable regions are then joined to human constant regions to create complete "fully humanized" antibodies.

In order to create fully humanized antibodies that bind well to an antigen, it is advantageous to design the reshaped human variable regions carefully. The human variable

regions into which the CDRs will be grafted should be carefully selected, and it is usually necessary to make a few amino acid changes at critical positions within the framework regions (FRs) of the human variable regions.

For example, the reshaped human variable regions may include up to ten amino acid changes in the FRs of the selected human light chain variable region, and as many as twelve amino acid changes in the FRs of the selected human heavy chain variable region. The DNA sequences coding for these reshaped human heavy and light chain variable region genes are joined to DNA sequences coding for the human heavy and light chain constant region genes, preferably $\gamma 1$ and κ , respectively. The reshaped humanized antibody is then expressed in mammalian cells and its affinity for its target compared with that of the corresponding murine antibody and chimeric antibody.

Methods for selecting the residues of the humanized antibody to be substituted and for making the substitutions are well known in the art. See, for example, Co et al., *Nature* 351:501-502 (1992); Queen et al., *Proc. Natl. Acad. Sci.* 86: 10029-1003 (1989) and Rodrigues et al., *Int. J. Cancer*, Supplement 7: 45-50 (1992). A method for humanizing and reshaping the 225 anti-EGFR monoclonal antibody described by Goldstein et al. in PCT application WO 96/40210. This method can be adapted to humanizing and reshaping antibodies against other growth factor receptor tyrosine kinases.

Methods for making single chain antibodies are also known in the art. Such methods include screening phage libraries transfected with immunoglobulin genes described in U.S. Patent 5,565,332; U.S. Patent 5,583,242; U.S. Patent 5,855,885; U.S. Patent 5,885,793; and U.S. Patent 5,969,108. Another method includes the use of a computer-based system for designing linker peptides for converting two separate polypeptide chains into a single chain antibody described in U.S. Patent 4,946,778; U.S. Patent 5,260,203; U.S. Patent 5,455,030; and U.S. Patent 5,518,889.

Other methods for producing the functional equivalents of antibodies described above are disclosed by Wels et al. in European patent application EP 502 812 and *Int. J. Cancer* 60:137-144 (1995); PCT Application WO 93/21319; European Patent Application 239 400, PCT Application WO 89/09622; European Patent Application 338 745; U.S. Patent 5,658,570; U.S. Patent 5,693,780; and European Patent Application EP 332 424.

The antibodies that bind specifically to the proteins comprising the amino acid sequences

of SEQ ID NOS: 388 and 389 can be used to detect the presence of said proteins. Assays for detecting the presence of proteins with antibodies can be performed using known formats such as standard blot and ELISA formats.

The antibodies that bind specifically to the protein comprising the amino acid sequence of SEQ ID NO. 388 can be used to identify murine bone marrow and thymus cells as well as cells of the monoclastic leukemia cell line in which it is expressed. The antibodies corresponding to the protein comprising the amino acid sequence of SEQ ID NO. 389 can be used to identify brain, heart, lung and kidney cells.

The antibodies of the invention may be used therapeutically as cytotoxic agents against, for example, leukemia cells. Antibodies with proper biological properties are useful directly as therapeutic agents. See, for example, U.S. Patent No. 5,134,075. Alternatively, the antibodies can be bound to a toxin to form an immunotoxin or to a radioactive material or drug to form a radiopharmaceutical or pharmaceutical. Methods for producing immunotoxins and radiopharmaceuticals of antibodies are well-known. See, for example, *Cancer Treatment Reports* (9184) 68: 317-328.

EXAMPLES

Hematopoietic Stem Cell Isolation /Sorting and Transplantation:

AA4+Sca1+c-kit+Lin-/lo (hematopoietic stem cell-enriched) and AA4- (hematopoietic stem cell depleted) cells were isolated by fluorescence activated cell sorting from the fetal liver of C57BL/6j-Ly-5.2 mice on day 14 of gestation as follows: quantitative enrichment of stem cell fractions was performed according to described protocols. Fetal livers were dissected from day 14 embryos in a sterile environment. Single cell suspensions were subjected to immunopanning with AA4.1 antibody. The AA4.1 positive fraction was then stained with fluorescein isothiocyanate (FITC)-labeled rat anti-CD3, CD4, CD5, CD8, CD45R, Gr-1 and TER-119 antibodies (called the "lin" set of antibodies). Cells were also stained with phycoerythrin (PE)-conjugated anti-Sca-1 (Ly-6A/E) and allophycocyanin (APC)-conjugated anti-c-kit. All antibodies were obtained from Pharmingen (San Diego, CA). Stained cells were separated on a dual laser EPICS 753 cell sorter (Beckman Coulter, San Diego, CA) by selection of high PE and APC as well as low FITC fluorescence. Cells used for cDNA library production were tested for

their stem cell potential in competitive repopulation assays that test the ability of stem cells to reconstitute the radioblated hematopoietic system of recipient mice.

This transplantation assay was performed essentially by methods known in the art. For the fetal liver, specified numbers of cells (25, 50, 100 or 250) were mixed with 400,000 C57B1/6-Ly-5.1 whole bone marrow cells and injected into the retro-orbital sinus of each irradiated (10 Gy) mouse. The level of engraftment was measured at different timepoints as the percent C57b1/6J-Ly-5.2 (donor) cells in the peripheral blood of transplanted Ly-5.1 animals. Animals demonstrating engraftment at least two standard deviations higher than the mean of negative controls were considered positive.

CDNA Library Construction and Subtractive Hybridization

Sorted cells were placed directly into Trizol (BRL-Gibco) reagent and treated with RNase-free DNase I according to the manufacturers protocols. The polyA-plus fraction was purified on oligo-dT cellulose (New England Biolabs). Prior to first strand cDNA synthesis, the mRNA was denatured using methyl-mercury hydroxide. The first and second strand cDNA was synthesized using the reverse transcriptase SuperScript II, DNA polymerase I, RNaseH and *E.coli* ligase. The first-strand primer was oligo-dT with a 5' NotI site. Double-stranded cDNA was blunt-ended with T4-DNA polymerase and ligated to a Sall adapter with T4-DNA ligase. The ligated cDNA was digested with NotI and size fractionated on columns. Size fractions 1 kilobase pair (kbp.) and greater in length were pooled and ligated in to the Sall-NotI sites of either pSport-1 (stem cell library) or pSport-2 (mature cell library). The ligations were electroporated into *E.coli* strain DH12S, titered and amplified on agar plates. Except where indicated, all of the reagents and protocols for the construction of the cDNA were from BRL-Gibco.

The basic strategy used to perform the subtractions has been described (Rubenstein et al. 1990, Li et al. 1994). Briefly, the stem cell library was converted into single stranded molecules by *in vivo* infection with helper phage according to BRL-Gibco protocols. Cesium gradient banded DNA from the mature cell library was linearized with Sall and used as template for the synthesis of biotinylated RNA using T7-polymerase. The use of the two different cloning plasmids insures that the RNA is complementary to the single-stranded cDNA inserts in the stem cell library. Hybridization conditions and the post-hybridization processing of the reactions were essentially as described in the BRL-Gibco protocols. Two successive rounds of hybridization

were performed. The resultant subtracted single-stranded DNA populations were repaired to a double-stranded form and amplified in *E.coli* DH12S. The DNA populations representing the subtracted libraries were purified on Cesium gradients. In order to eliminate the plasmids which did not contain inserts (these are enriched following subtraction), the library DNAs were linearized with NotI and subjected to four successive agarose gel electrophoresis fractionations. After each electrophoresis gel the DNA smear corresponding in size to vector plus 1 kbp and greater was excised and eluted using the sodium iodide/glass bead procedure. After four such fractionations essentially all empty plasmids were eliminated.

The resultant DNA population was introduced into *E.coli* DH12S and individual clones were robotically picked into 384-well plates. A separate aliquot of the library was amplified as a population and used to prepare DNA. The subtraction efficiencies were verified by monitoring the clone number reduction as a function of hybridization with biotinylated RNA in comparison with mock hybridizations lacking RNA. Generally, this was on the order of 100-fold. A more direct measure of subtraction efficiency was obtained by hybridizing pre and post-subtraction cDNA Southern blots with probes such as beta-actin, CD34 and flk-2. The DNA populations on the blots represent approximately equal numbers of individual clones. The cDNAs corresponding to the CD34 and flk-2 molecules (both previously shown to be expressed preferentially in the stem cell-enriched populations) are enriched or at least retained in the subtracted libraries. Special care was taken to carefully monitor the minimal number of PCR cycles necessary to produce the required amount of amplified product. This was done by performing pilot reactions using 2 cycle increments.

The amplified material representing different numbers of PCR cycles were analyzed in triplicate Southern blots that were hybridized with probes representative of different mRNA size classes. In various experiments these included GAPDH, beta-actin, flk-2, CD34 and ckit. Cycle numbers where discrete full-length cDNA products were observed with little or no detectable lower molecular weight material were determined and, in general, the preparative amplifications employed 1 fewer cycles. The amplified cDNA material was used to generate libraries as described above. Alternatively, the cDNA was used for PCR-Select subtractions. These methods were performed by methods well known in the art.

DNA Sequencing

Initial sequences were obtained by chain termination using the Sequenase Version 2.0 kit (U.S. Biochemicals). The majority of randomly selected sequences were generated by single-pass automated sequencers by Commonwealth Biotechnologies, Inc. (Richmond, VA) or by Incyte Pharmaceuticals Inc. (Palo Alto, CA).

Biological Sequence Analysis

DNA sequences and conceptual translations were compared with known nucleotide and protein sequences using the BLAST algorithm (blastn for nucleotide and blastx for protein databases). Six publicly-accessible databases were searched: SwissProt, Genbank nr protein, Genbank nr nucleotide, dbEST expressed sequence tags, and the murine and human DOTS databases of EST contigs. Sequences were also compared with those in SCBD itself as a measure of internal redundancy. Potential open reading frames (ORFs) were located using ORF finder (NCBI, Bethesda, MD). Protein motif searches were performed using five different motif identification programs: Prosite (PBIL, France), Pfam (Washington University, St. Louis), ProDom (INRA, France), SMART (EMBL, Heidelberg, Germany) and eMatrix (Stanford University). Transmembrane helices were detected using the TMPred server, and potential signal peptides were detected with SignalP. Subcellular localizations were predicted in some cases using PSORT II.

CLAIMS

1. An isolated nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO:1 to SEQ ID NO:385.
2. An isolated nucleic acid molecule according to claim 1 wherein the nucleic acid molecule is a DNA molecule.
3. An isolated nucleic acid molecule according to claim 1 wherein the nucleic acid molecule is an RNA molecule.
4. An isolated nucleic acid molecule according to claim 1 wherein the nucleic acid molecule is purified.
5. A vector comprising a nucleic acid molecule according to claim 1.
6. A vector according to claim 2 wherein the vector is a cloning vector.
7. A vector according to claim 2 wherein the vector is an expression vector.
8. A host cell comprising a nucleic acid molecule according to claim 1.
9. A host cell according to claim 8 wherein the nucleic acid molecule is in a vector.
10. A host cell according to claim 8 wherein the vector is a cloning vector.
11. A host cell according to claim 8 wherein the vector is an expression vector.
12. A host cell according to claim 8 wherein the nucleic acid molecule is incorporated into the genome thereof.

13. A host cell according to claim 8 wherein the host cell expresses the nucleic acid molecule.
14. An isolated nucleic acid molecule comprising SEQ. ID NO: 386.
15. An isolated nucleic acid molecule comprising SEQ. ID NO: 387.
16. An isolated protein comprising the amino acid sequence of SEQ ID NO. 388.
17. An isolated protein comprising the amino acid sequence of SEQ ID NO. 389.
18. An antibody that binds specifically to the protein according to claim 16.
19. An antibody that binds specifically to the protein according to claim 17.

SEQUENCE LISTING

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 gattaattct ttgtcttggt cctgccagaa tgcagcacgc cttgtggccc aggaatggTt 420
 tcgagtgtcc agccaaaaac gctctcaggc agagtctgtg gctggggTtc ttcgaggggt 480
 gaaaagcctg ggggcctgag ctggctgggc ttatgtggTg aanctgggct gatggcaatn 540
 ggaacacagc tctgcattaa agcgtgttct ca 572

<210> 12
 <211> 563
 <212> DNA
 <213> Mouse

<400> 12
 ctgaggaact tcatccaaac tgaagctgtg gTcagcaagc ctttcagcct ctttgacctc 60
 agcagtgttg gattgttcgg ggCagagaca cagcagaata aagtggcccc aagcagcgca 120
 ncagccgccc tgtcctgtcc agtcgttctg accagagcca aaagaatgag gtgttttttg 180
 atgtgttgga gagactgtct gtactgattg catctaattg ctogttgttg aaggTggacg 240
 tccaaggaga gatacggtc aagagcttcc tcccagcggt ttctggTgag aaccaatggT 300
 taggtgtggc gcaggcttcc ttgtgatgtg catggtggta ttTgctatcc cttttctcat 360
 gtccttcctc ccacagagat atgcattggc ttgacagaag aatttTgtgt ggaaagtCag 420
 nactgagagg ntatggggcc agggattcga gttgatgagg tgtcattcca tagttctggn 480
 caatctagan gagtttgnag tctcaatcgg ntcctccgcc tgcagncacc ttcangggcg 540
 aaccgactgt tgaatganaa anc 563

<210> 13
 <211> 652
 <212> DNA
 <213> Mouse

<400> 13
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 cgaggctcct ggaggaattg ccacaccgcc agtgTacggT cagcttctag ctttTgactt 180
 gctccagaac gacatgaata atgcaagata tctgtggaag aggataccac ctgctataaa 240
 gtctgcaaat tctgaacttg ggggaatttg gTcagttgga cagcgaatct ggcaaagaga 300


```

tttccctggg atctatacaa ccatcaacgc ccaccagtgg tcagagactg tgcagccaat 360
catggaagcc cttagagatg caacaaggag acgcgccttt gccctgggtct ctcaagctta 420
tacctccatc atcgcagatg attttgcagc gtttggttga cttcctgtgg aagaggctgt 480
gaaaggcgtg ttggaacaag gatggcaggc cgactccacc acaagaatgg ttcttcccag 540
gaaagccagc ctcaggananc ctgggatgtc tccttgaaca ggtttatccc cttatcagag 600
ctgccccag ttccgccaat cccaatgag cagcagttcg gccgggtcaa cc 652

```

<210> 14

<211> 559

<212> DNA

<213> Mouse

<400> 14

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gtgctttggt ctggcagagg tgggtggcggc gagagcggcc gggaagatgc cagtagcggt 60
gatggcggac aacgccttca gtttcagaaa gctgttggat cagtgcgaga accaggaact 120
cgaggctcct ggaggaattg ccacaccgcc agtgtacggc cagcttctag ctttgtactt 180
gtcccagaac gacatgaata atgcaagata tctgtggaag aggataccac ctgctataaa 240
gtctgcaaat tctgaacttg ggggaatttg gtcagttgga cagcgaatct ggcaaagaga 300
tttccctggg atctatacaa ccatcaacgc ccaccagtgg tcagagactg tgcagccaat 360
catggaagcc cttagagatg ccacnaggag acgcgccttt gccctgggtct ctcaagctta 420
tacctccatc atcgcagatg attttgcagc gtttggttga cttcctgtng aagangcttt 480
tgaaggcgtg ttggnacnag gatggcaggc cgacttcac cacaagaatn gttctttccn 540
gggaaggcca ggcttcagg 559

```

<210> 15

<211> 647

<212> DNA

<213> Mouse

<400> 15

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gtgctttggt ctggcagagg tgggtggcggc gagagcggcc gggaagatgc cagtggcggt 60
gatggcggac aacgccttca gtttcagaaa gctgttggat cagtgcgaga accaggaact 120
cgaggctcct ggaggaattg ccacaccgcc agtgtacggc cagcttctag ctttgtactt 180
gtcccagaac gacatgaata atgcaagata tctgtggaag aggataccac ctgctataaa 240
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tttccctggg atctatacaa ccatcaacgc ccaccagtgg tcagagactg tgcagccaat 360
catggaagcc cttagagatg caacaaggag acgcgccttt gccctgggtct ctcaagctta 420
tacctccatc atcgcagatg attttgcagc gtttggttga cttcctgtgg aagaggctgt 480
gaaaggcgtg ttggaacaag gatggcaggc cgactccacc acaagaatgg ttcttcccag 540
gaagccagcc tcaggaancc tggatgtctc cttgaacagg nttatcccct atcagagcct 600
gccccagttt cggcaatccc aatgagcaga gtcgccccg gttaacg 647

```

<210> 16

<211> 663

<212> DNA

<213> Mouse

<400> 16

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ggntggtngt cagagcccag ncnagtnggg aaaaagccat tagcngtgat ggcggaacaac 60
gncttcagtt tcannnagct gtnggatcag tgcgatancc aggaacncgn ngctccnnga 120
ggaattgcc aaccgccatg tacggtcagc ttctagctag tgnnnntant cennnnncnc 180
attaatanng cannatntct gtggaagagg ctannacctg cnnnnnnnnn tncaaatnct 240
naanttnggg gccttnggtc ntttggncaa cagatctggc antangaccc tcccnnggct 300
ctatncnanc atcagnnccc annnntggtn cngngancng naggeccccc tggtaccccn 360
tnggnntgca cnaaggggan gcgcennnnc ccgggncctc caagcntatg cctncattca 420
tcgcaaaagta attgcncagn gtttagggng acttcctntg gnncacgcn ttnagggcg 480
tcntnnaatc ggggtctggc anaggnagtc caccaggggg ttgntctnc cccngtanen 540
agcctnagga cccctngna agacnccttt naaccggcn tntcngtta attggaatcc 600
ttccccgnt tccnggctaa agncccccaa tcggggccna gggntnccc cgnatnacct 660
ngn 663

```

<210> 17

<211> 633

<212> DNA

<213> Mouse

<400> 17

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gtgctttggt ctggcagagg tgggtggcggc gagagcggcc gggaagatgc cagtggcggt 60
gatggcggac aacgccttca gtttcagaaa gctgttgat cagtgcgaga accagggaact 120
cgaggctcct ggaggaattg ccacaccgcc agtgtagcgt cagcttctag ctttgtactt 180
gtcccagaac gacatgaata atgcaagata tctgtggaag aggataccac ctgctataaa 240
gtctgcaaat tctgaacttg ggggaatttg gtcagttgga cagcgaatct ggcaaagaga 300
ttccctggg atctatacaa ccatcaacgc ccaccagtgg tcagagactg tgcagccaat 360
catggaagcc cttagagatg caacaaggag acgcgccttt gccctggtct ctcaagctta 420
tacctccatc atcgagatg attttgcagc gtttgttga cttcctgtgg aagaggctgt 480
gaaaggcgtg ttggaacaag gatggcaggc cgactccacc acaagaatgg ttcttcccag 540
gaagccagcc tcaggaancc tggatgtctc cttgaacagg ttatccccct atcagagcct 600
gccccagttc cggcaaatcc ccaatgagca gca 633

```

<210> 18

<211> 552

<212> DNA

<213> Mouse

<400> 18

```

gtgctttngn cngncagang tggtngcnnn nagagggccg ggaagatgcc antngcgggtg 60
atggcggaca acgccttcag tttcagaaa ctgttngatc antncngaa ccnggaactc 120
gaggctcctg gaggaattnc caaaccgcca gtgtacngtc agcttctanc tttgnacttg 180
ctccagaacn acatnaataa tgcaagatat cngtngaaga ggataccacc tgctataaag 240
tctgcaaatn ctggaacttg ggggaatttg gtcanttgga cancgnntcn ggcanagnng 300
ttccctggg atctnnacna ccatcaacgc ccaancagtg gncaganact gtgcagccaa 360

```

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tcgtgnaagc ccttnngaga ngccaancna agnnnacgcg cctttncnccn gngncnntac 420
aagcttnaaa ncctcccatc natcgnnnan ggaatttgac agccgttnnt ngganctcc 480
caggtgggna agaangcnnn ntnaaaaagg ntnntggga aacnaangga ngncnaggc 540
ccnannctcc nc 552

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<210> 19

<211> 589

<212> DNA

<213> Mouse

<400> 19

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gtgnggtccc agacgggctc aggtaaaact cttgcctatt gngtccctgt ggtccagtct 60
cttcgcgcac tgacatcaaa aaatgcagcg nagtgntggg cegtatgctt tggtectagt 120
gnccaccaga gagttggctc tgcaaagctt tgacactgnt cagaaagctg ctttaagccat 180
tcacctggnt tgnctctgga gngttgatgg gngnggagna gaggatntcg gaaaaagcta 240
gactccgaaa aggcataaat atccttntct ccactcctgg ccgtctagtg gatcntataa 300
tatccacnaa gaaccttcac tttaaccgaa tanggtggct gattgnggat gaagcagacn 360
ggatcttggga tttgggtttt gtgaaggaca tencagtgat tctgaatgct gtcaatgctg 420
agngtcagat acggnaagaa tgcctccng tngnganact canagaaggt gnaanacggc 480
tagttgatnt cagntgccc antcncgtcn gtntctctgt cctgggcaaa aactggaacn 540
tgnccaatcc taggaaantg ntnntgtcna gctcaaaanc attgacant 589

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<210> 20

<211> 565

<212> DNA

<213> Mouse

<400> 20

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actcattgtc ttacacctgg tcttcaggat gagctgctca agggctcttt gcttcaccaa 60
ctcccagaaa aactcccaca ggctgtacct attagcacia gcttttgggg gtgtgagtgt 120
ggctgaattc tctcccgt atgggcctgg ccaaaggaa aaaatcttga agcagtttga 180
acaaggaaa atccagctcc ttatcagcac agatgctact gctcgaggca ttgatgtgca 240
gggtgtggag ctggtgatca actacgatgc cccacaatat ctgaggacct atgtgcacag 300
ggtcgggaga acagctcgag ccggggaaac tngacaggga ttcacacttc tcttnnaagt 360
gcaangaaa agttcttaa aatggtgtaa gaantggggg tgcttgagtg acacaccatg 420
agatcccagg aagttcctgc agccgtggg tgcctgttat gagacagcct tgtctcagtn 480
ngagaaaact gtcaaaggag gagcagaaac tgaaggcagc cctagatgag acangggcct 540
ggagggaaga tcntgcgaaa naaga 565

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<210> 21

<211> 578

<212> DNA

<213> Mouse

<400> 21

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cactggtatt cactctgcc gtcacatgt tctgectgga acaggagaag cggttgcctt 60
tctccaagcg agaggggctt tatgggctca tcatctgccc ctgcgagag ctggctcggc 120
agaccacagg cactctggag tattactgcc gtctgtgca ggaggacagc tcacctcct 180
gcgctgtgcc ctctgcatcg ggggcatgtc ggtgaaggag cagattgaga ccatccgaca 240
tggtgtgcac atgatggtag ccacacctgg acgcctcatg gatttgctgc agaagaaaat 300
ggtcagccta gacatctgcc gctacctagc cctggatgaa gctgaccgca tgattgacat 360
gggctttgag ggtgacattc ataccatctt ctctacttc aaggggcaac ggcagactct 420
gctcttcagt gccaccatgc cgaagaagat tcaaaacttt gccaaagtg ccttggtaaa 480
gcctgtcanc atcaatgtgg gtcgtgctgg agcaaccagc cttgatgtca tccaggagg 540
ggagtatttg aagggggnan ccaaaatggn ntatttct 578

```

<210> 22

<211> 495

<212> DNA

<213> Mouse

<400> 22

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gccatggagt ctgtggagcc cccggtcaaa gacggcatcc tctacnagca gcacgtantg 60
tttggaaga aatgctggcg caaagtgtgg gctctgctgt atgcgggagg cccatcaggg 120
gtagctcggc tagaaagctg ggacgtgcgt gatggtggcc tgggaccagc atgcgacagg 180
tccacagggc ccagccgtcg aggggaacgc cgggtcatac gcttggtgga ctgtgtatct 240
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actgagcgaa ccacctgttg gctgcacagc accgccagtc ctgggtggac cccatctgtc 360
agctggcctt cccgggtacc ggagaatttt cctcaggatc aggacaggct gagagtccaa 420
aaaagggctt tggtcccatg gaggaact ctatctactc ctctggcag gaaatgaccg 480
agtttccggt gatcg 495

```

<210> 23

<211> 556

<212> DNA

<213> Mouse

<400> 23

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gccttgngt ctgtggngcc cccggtcnan gacggcatcc tctaccagcc gcacgttnag 60
nntggcaaga natgctggcg canagtgtgg gctctgctgt atgcgggagg ccctcnggg 120
gtagctcggc tagaaagctg ggacgtgcgt gatggtggcc tgggaccngc ntgcgacagg 180
tccacagggc ccagccgtcg aggggaacgc cgggtcatac gcttggtgga ctgtgtctct 240
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ctgagcgaa cnacctgttg gctgcncagc accgccagtc ctgggtggac cccatctgtc 360
agctggcctt cccgggtacc gagaatgttc gtcaggatca gggacaggct gagagtccaa 420
aancggggtt tggtcccatg gaggaact ctatctactc ctctggcng gaagtganag 480
agtttccggt tatcgtgcaa aaggaaaaag gccacttccg tggcnagtga anggacccta 540
ctcctggggc nggggn 556

```

<210> 24

<211> 471
 <212> DNA
 <213> Mouse

<400> 24
 cggacgcgtg ggcggacgcg tggggccatg gagtctgtgg agcccccggt caaagacggc 60
 atcctctacc agcagcacgt aaagtgtggc aagaaatgct ggcgcaaagt gtgggctctg 120
 ctgtatgcgg gaggcccatc aggggtagct cggctagaaa gctgggacgt gcgtgatggt 180
 ggcctgggac cagcatgcga cagggtccaca gggcccancc gtcganggga acgccgggtc 240
 atacgcttgg ctgactgtgt atctgtcctg cctgcggtatg gcgaaanctg tcccaggggac 300
 actggtgcct tcctgattac caccactgan cgaaccacct gttggctgca cagcaccgcc 360
 agtcctgggt ggaccatct gtcagctggc cttcccggt accggaaaat gttcgtcagg 420
 atcaggacag gctgaaaatc caaaaagggg ctttgttccc atggaagaaa a 471

<210> 25
 <211> 585
 <212> DNA
 <213> Mouse

<400> 25
 cgacttgcac cctacaacgg gctccaggct agaggactcc tgattcacca tggagtccac 60
 gctgagcgcg ggcatacataa tggctgaagc actacagaac cggcttcccg ggctagagaa 120
 tatgtggctc tgggtcacct ttctgggcga tcctaagaat ctttttcagt tctgcttccc 180
 cgcggcctac tacgctctcc gccgcctggg catctccgtg ctctggatca ccttcattgc 240
 tgagtggctc aaccttgtct tcaagtgggt tctgtttgga gacaggccct tttgggtgggt 300
 gcatgaatcc gggactacca cccagactcc aatccagatt caccagttcc cttcttcttg 360
 tgagactggt ccaggcagcc cctccggcca ctgcatgatc acaggcgcan tctttggcct 420
 gtaatgacgg ccatttcttc tcagggtggct tctcggtccc gcagcccctg ggtganggtg 480
 attcctgggc ctggcttaat tggaaacctc ctaatttggc agtcgggcta atctcgggtc 540
 ttctctctaa gncatttttc ccttaaccaa gtgnttgggg gggn 585

<210> 26
 <211> 558
 <212> DNA
 <213> Mouse

<400> 26
 cgacttgcac cctacaacgg gctccaggct agaggactcc tgattcacca tggagtccac 60
 gctgagcgcg ggcatacataa tggctgaagc actacagaac cggcttcccg ggctagagaa 120
 tatgtggctc tgggtcacct ttctgggcga tcctaagaat cttttccgcg gcctactacg 180
 cctcccgccg cctgggcatac tccgtgctct ggatcacctt cattgctgag tggctcaacc 240
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 gcagcccctc cggccactgc atgatcacag gcgcantctt tggcctgtaa tgacggccat 420
 ttcttctcag gtggcttctc ggccccgag cccctgggtg anggtgatc ctggcctggc 480
 ttattgtacc ttctattgg cagtcgggct atctcgggtc tttctcttta gcacatttcc 540

cctcaacaag tgttnggn

558

<210> 27
 <211> 612
 <212> DNA
 <213> Mouse

<400> 27
 gaggnntccc ctgaanaatg gagaagnngt cgcctatgta tacngtntgc atgccatana 60
 ccatgtcctc annaccaatn ctcaggtggn gggtanacan agtaggngcc ggagtnanaa 120
 acttgggnnn nnnagnagt ntgantncan ggnccancgg ctcaccaggn cnaangtact 180
 tatagtngtg ccttccggg aagntnccct ncgggtgggc cagctctnca tcagcctcct 240
 tgaaggggan anaataagnn aatccntngt aaccnntana naacggtnct ncgggganta 300
 nngatctnaa cntntagagn gacctcccaa cntgangnng nctnaggaan ntnannctgt 360
 gnacgtgggc aatnatgatg ngcanttcag ganaggagtn gnaatacnc atgnagcatc 420
 ctgntctagg gcnegtttta ctccctnnnc atcctcagtn cctgccnctt ngcntgaaga 480
 ccatcactag tgetgaangc cagngtaaaa gnnttgacn tctntcttcg atgagctgct 540
 ccnatgtcag gtggatnaaa tgnctgcaat ngaactntct gattgagagn ctgactggcc 600
 tgattttggg ag 612

<210> 28
 <211> 526
 <212> DNA
 <213> Mouse

<400> 28
 cagaaaatat gcagttacat ttatttatat atttggcaag aaatcttttc tgagtgatca 60
 atgcatttca atttatgaaa aataatggtt agggggcact gtttattata gataatttta 120
 aggtatataa ctgttttcaa ggacggccac ttccacctag cggtaagcc gagaggactg 180
 catctaaatt gtgactgtgg cagatgggtc ttcacagaaa ccatgtcttt attcaaactt 240
 cacaaggcta tatttgaact gttaactagg catttcaaaa caggagatac cttcaacaga 300
 ctcttttcca agagcagggt ttactgtttt tttgatgtaa ttttaagaca ttttagcaaac 360
 atgcatttct ttatatgata catttctttc acaaaacaat ttaaaagtaa gccaaagtgt 420
 gcctgtctct cgagtaggaa ctgcatcaga atcgtgtatc ttgctgtaca atgcctgtga 480
 tagtgaagan ggntcttctt agtgtatgct gggtacctaa ctctgg 526

<210> 29
 <211> 551
 <212> DNA
 <213> Mouse

<400> 29
 nanaaaaatan gcagttanat ttntttatat atttnncaag agaactctnn cngacnnc 60
 aatgcantnn antttatgaa aantaatggn nagnnggcc tgnatatan agatnatttt 120
 aagggnagat aactgtntc anngnacng cactntccan ctagnngtcn anccganagg 180

```

nctgcatctn ngtnngact gtgggcangt nggtctncac nnaaannang tctnatannc 240
aaacttcaga aggtatatatt nganctgtta nntnggnctt tcaaaacagg agnnaccttc 300
nancnctnt ttnccaagnn naggtntnac tggttttgtt gaggnaantt gangacntnt 360
angcnnacat gcattncntt anaaggatac catgagcttn ncacacaanc aattnaanga 420
ntgaaancna angngcngac ntngagnng nngagtnang ganacctga nttaaggaca 480
ngccgnngtn cncnnngnn nggnacccaa tggcccgtng cntnaagnga ggantgggta 540
nctgcnnnan n 551

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<210> 30

<211> 534

<212> DNA

<213> Mouse

<400> 30

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ctcctccagg gccaccaagc acctctgaag agccatgttc caagctgccg gagccgccc 60
ggccaccccc tctcatgaag ccaaaggcag cagtggcagc agcacggtac agcgggtctaa 120
gtccttttagc ttgcgggctc aggtgaagga gacctgtgca gcctgccaga agactgtgta 180
cccgatggag cggctggtgg cagacaagct cattttccac aactcttgtt tctgttgcaa 240
acactgccac accaaactca gcctgggcag ttatgtgca atgcacggtg aattttactg 300
cagacctcac ttccagcagc tgtttaagag taaaggcaac tacgatgaag ggtttggtcg 360
taaacagcac aaggagctct gggccacaa ggaggtggac tcaggcacca agacggcctg 420
agacccttt aacaccatt cctcccagc acatggcctc ccgctgggca gtggaaagga 480
gattaacccg gggggcgcg ggtgggagan gatgaggctc cctcacacag gttt 534

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<210> 31

<211> 539

<212> DNA

<213> Mouse

<400> 31

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atctcctcca gggccaccaa gcacctctga agagccatgt tccaagctgc cggagccgcc 60
caggccaccc cctctcatga agccaaaggc agcagtggca gcagcacggt acagcggctc 120
aagtccttta gcttgcgggc tcaggtgaag gagacctgtg cagcctgcca gaagactgtg 180
taccgatgg agcggctggt ggcagacaag ctcatcttc acaactcttg tttctgttg 240
aaacactgcc acacaaact cagcctgggc agttatgctg caatgcacgg tgaattttac 300
tgcagacctc actttcagca gctgtttaag agtaaaggca actacgatga agggtttgg 360
cgtaaacagc acaaggagct ctggggccac aaggaggtgg actcaggcac caagacggcc 420
tgagaccct ttaacacca ttccctcca gcacatggcc tcccgtggg cagtggaaag 480
gagattaacc cggggcgcg ggttggaag gatgaggetn cctcacaca ggtttcagg 539

```

<210> 32

<211> 529

<212> DNA

<213> Mouse

<400> 32

atctcctcca gggccaccaa gcacctctga agagccatgt tccaagctgc cggagccgcc 60
 caggccaccc cctctcatga agccaaaggc agcagtggca gcagcacggt acagcgtct 120
 aagtccttta gcttgcgggc tcaggtgaag gagacctgtg cagcctgcc gaagactgtg 180
 taccgatgg agcggctggt ggcagacaag ctcatcttcc acaactcttg tttctgttg 240
 aaacactgcc acaccaaact cagcctgggc agttatgtg caatgcacgg tgaattttac 300
 tgcagacctc actttcagca gctgtttaag agtaaaggca actacgatga agggtttgg 360
 cgtaaacagc acaaggagct ctggggccac aaggaggtgg actcaggcac caagacggcc 420
 tgagaccctt ttaacaccca ttccctccca gcacatggcc tcccgctggg cagtggaaa 480
 gagattaacc cgggggcgcg ggtggggaga ggatgaggct cctcacaca 529

<210> 33

<211> 540

<212> DNA

<213> Mouse

<400> 33

ttcgcatgga ccctgcagcc tacatcttcc tccagaaccc tccaggtctg cctgctattg 60
 cgctctgctg gtttgtgggc tgcatttgtg ggagcaaatt ggtcatcgac tggcacaact 120
 atggctactc catcatgggc ttggtccatg gcccccgcca cccattgtg ctgctggcca 180
 aatggtatga gaagtcttc gggcgctgt cccacctgaa cctgtgtgtg accaatgcta 240
 tgccggagga cctggcagag aactggtgtg tcagggtgtg gacgctctac gacaagccag 300
 catctttctt taaggagaca cccctggacc tgcagcatga actctttatg aagctgagcc 360
 acacgtantc tctttccag agctgctnag-atccctcana tcttgacaca nagaagtcgg 420
 gccttcaact gagagggatt ttcanagnng ggttntgagg cgtctgaatg gggcggncaa 480
 actggtcgtt annaggaaaa gctggaaaagg tatgcttccc ctggnaactg ggggtgtgtg 540

<210> 34

<211> 575

<212> DNA

<213> Mouse

<400> 34

catcattgtg ttattgctgc agaaggcttg gcggggcacc ctggctaggt ggcactgccg 60
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 cctnggttcc aggtgcacg gcagcccca ctctatggcc gtgacctgt gtggcccaca 180
 cctcctgctg tgcgcagcc cttccaggac acttgccgtg ttctcttcag caggtggcgg 240
 gcacggcagt tagtgaagaa catccctcct tcagacatga tccagatcaa ggccaaggty 300
 gctgctatgg gggccttgca aggattgcgg caggactggg gttgccagcg ggcctggggc 360
 cgagactacc tgcctctga cactgacaac cccacagctt cccatctgtt tgctgagcaa 420
 ctaaaggcac ttcgggagaa agatggcttt ggctctgtgt tttctccan gccatgttgc 480
 ggcnaaggty aaatngcttt ccgccaagaa nccgggaacc ggggcccttt ctgnntcac 540
 cagattcggg taatctngta anaancttgg nagcc 575

<210> 35

<211> 588
 <212> DNA
 <213> Mouse

<400> 35
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 gagcaagggt tgggtggggc ccatggcttg ctctgccgcc tctctgaccg tgtggacaag 180
 aaacttcttg atgccgcagg agccaacctc agagtcatca gcacctgtc tgtgggggtc 240
 gaccacttgg ctttggatga aatcaagaag cgcgggatcc ggggtgggcta cacgccagg 300
 gtcttgacag atgccactgc agaactcgcc gtctccctc ctcctcance acctgccgcc 360
 ggttgccgga ggccatagag gaagtgaaga acggcgctgg aacncctgga gccattatg 420
 gatgtncggc tacggactct cgnagancac tgttnggcatt tgttgggctt gggcgatagg 480
 tcaggcaatn cncctgaaga ctgaaacctc tcgggtgccc agaaatttct tnanaanggg 540
 gngccaccn aagggcctna aggaaaacac ccnaanttn aggcana 588

<210> 36
 <211> 534
 <212> DNA
 <213> Mouse

<400> 36
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 ggagcaagggt gtgggtgggg cccatggctt gctctgccgc ctctctgacc gtgtggacaa 180
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 cgaccacttg gctttggatg aaatcaagaa gcgcgggatc cgggtgggct acacgccagg 300
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 gttgccggag gcattagagg aagtgaagaa cggcggtgag agtcctgga gccattatg 420
 gatgtgcggc tacggactct cgcagagcac tgttggcatt gtggggctgg ggcgcatagg 480
 tcaggccatc gctcgacgac tgaaaccatt cgggtgtccag agatttcttt acac 534

<210> 37
 <211> 524
 <212> DNA
 <213> Mouse

<400> 37
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 ggccgcagac tgtgaggtgg aacagtggaa ttcggatgac cccatcccca gaaaggatct 120
 ggagcaagggt gtgggtgggg cccatggctt gctctgccgc ctctctgacc gtgtggacaa 180
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 gaccacttgg ctttggatga aatcaagaag cgcgggatcc ggggtgggcta cacgccagg 300
 gtcttgacag atgccactgc agaactcgcc gtctccctc tctcaccac ctgccgccg 360
 ttgccggagg ccatagagga agtgaagaac ggcggtgga gtcctggag cccattatg 420
 atgtgcggct acggactctc gcagagcact gttggcattg tggggctggg gcgcataagg 480

caggccatcg ctcgacgact gaaaccattc ggtgtccaga gatt

524

<210> 38

<211> 538

<212> DNA

<213> Mouse

<400> 38

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 tggccttctg tattcagtno gagtcttccc gaacgctgca gtggctcgtc ctggtttcta 180
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 gaaaccctt tttcagacat caccagtga ggttcgtctt ggaaccagac acaaggcact 300
 gcagcatcag gncctttgctc taaacagctc acgatgccag gaactngcca attactactt 360
 tggcttcagt ggtgggtcga aaaggatcat caagctgcag gagctctccg gactggagga 420
 tgcagctctc tgtgccatgn agaaggggag cccagttct ctgcgctgta naagtgtgct 480
 gccccctaag gatgcangag cncctgggnt tgnatctctg aggagctntg cgcantgg 538

<210> 39

<211> 527

<212> DNA

<213> Mouse

<400> 39

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 tggccttctg tattcagtcc gagtcttccc gaacgctgca gtggctcgtc ctggtttcta 180
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 gaaaccctt tttcagacat caccagtga ggttcgtctt ggaaccagac acaaggcact 300
 gcagcatcag gcctttgctc taaacagctc acgatgccag gaactggcca attactactt 360
 tggcttcagt ggtgggtcga aaaggatcat caagctgcag gagcncctccg gactggagga 420
 tgcagctctc gctgggtgcc atgcanaagg ggngcccca gtttcttttg gcggctgtan 480
 aggtngtggn tgcccccn acgggatttc angaggcccc tgggggg 527

<210> 40

<211> 580

<212> DNA

<213> Mouse

<400> 40

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 gagcactggg cccccagccg aagccttaag tcattctctg ttcacagtgt tctctcagtt 120
 tggccttctg tattcagtcc gagtcttccc gaacgctgca gtggctcgtc ctggtttcta 180
 cgccatcatc aagttttact cctcgcgga cgcacagaga gcccagaagg cttgcnatgg 240
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gcagcatcag gcctttgctc taaacagctc acgatgccag gaatggccaa ttactacttt 360
 ggcttcagtg gatggctcgaa aaggatcatc caagctgcag ggagctctcc ngactggagg 420
 gtgcagctct cgctgtgccc atgccngaana ggggnncccc aatttctctg gcgctnntaa 480
 aantggtgct gccccctta nggatgcaag gaacntgggg gtttggcanc tcttgaaggg 540
 cttttggggc caattggnan gnaagggcaa tctcgttttt 580

<210> 41
 <211> 547
 <212> DNA
 <213> Mouse

<400> 41
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 gttcttccat accgattatc ggccccctcat cagagatgcc aataactatg tattagatga 120
 acaaactcaa caagctcctc acctcatgcc tcccccatc ttgggtggatg tcgatggaaa 180
 tctctcatct acaaaatttc aacggctggg accaggacgg gaaaactgta aagatgaaca 240
 acttattcca cagttaggat atgtggctaa tggtgacggg gaggtggtag aacaggtaat 300
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 atcatattct gttaatgggt ctctgagtag tccaatatg gacatacctt tcttcccaaa 480
 atatgggctc tcgggcgtag tgggcnaat tgaaaggtgt ttcggcagat gncccaacaa 540
 tgctncc 547

<210> 42
 <211> 542
 <212> DNA
 <213> Mouse

<400> 42
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 tnncgattat cggccccctca tcagagatgc caataactat gtattagatg aacaaactca 120
 acaagctcct cacctcatgc ctccccatt cttggtggat gtcgatggaa atcctcatcc 180
 tacaaaaatt caacggctgg taccaggacg ggaactgt aaagatgaac aacttattcc 240
 acagttagga tatgtggcta atggtgacgg tgaggtggta gaacaggtaa ttgggcagca 300
 aaccaatgac caagaagaaa gcattcttga tggataatc agggagttac agagagaaca 360
 agatctcaga ttaattaatg aaggagatgt tccacatttt ccaattaata gatcatattc 420
 cggntaatgg tgccccctgag tagtcccaat atgggacata cccttcttcc ccccaaatat 480
 tgggcctcgc gcgtaatggg cccaaatttt aangnggttc ggcaaatggc cccaanattg 540
 cn 542

<210> 43
 <211> 543
 <212> DNA
 <213> Mouse

<400> 43

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 ctgaacttgt cccctcggca cggcaaggag gaggggtggg cagacaggct ggaactgaag 120
 gagctgtctg tgcagcggca tgacgaggtg ccacccaaag tccccaccaa cggccactgg 180
 tgcacggata cagcaacact gaccacggcc ggtggccgca gcaccacagc tgccccgcgc 240
 cctctgagac ttcccttggc caacgggttac aagtctctgt cccaggaag gctcttccct 300
 tcttccaaat gttaaagcag cttcttgccc ccaactcagt gcacactcca gccagagtcc 360
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 gacaggcggg ctccctgggc aaggctactg ccacgccaaa tgccactgta ctacgggta 480
 aacctgggc cagattcacc caaagcaggt ctcacgtggg aatggcagcg cttctctgcc 540
 ggn 543

<210> 44

<211> 717

<212> DNA

<213> Mouse

<400> 44

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 acaagctcct cacctcatgc ctccccatt cttggtggat gtcgatggaa atcctcatcc 180
 tacaaaattt caacggctgg taccaggang ggaaaactgt aaagatgaac aacttattcc 240
 acagttagga tatgtngcta atggtgacgg tgaggtggtg aaacaggtaa ttgggcagca 300
 aaccaatgac cnaagaagaa ngccttcttg gnnnggaana atcnggggna gtttcccggg 360
 aagnaccaa gnnccctngg tttaaattaa atgnaanggg gggatgnttc cccacaattt 420
 ttncnantt tanngttagg anttccataa ntttncnggg ggnaaaaaat ngggnnggcc 480
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 ttntncccc ccaaaaattt antttggggg cccttttcgg gggnggnaag agggggnccc 600
 caaanttttg aaaggggggg tttccgggnc caaganttnc accaaaacca atnggcccc 660
 ccccgggggc ccaagattgg ccccttgnaa aaggggcccc cccanggggn cnggggn 717

<210> 45

<211> 514

<212> DNA

<213> Mouse

<400> 45

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 taccgattat cggccctca tcagagatgc caataactat gtattagatg aacaaactca 120
 acaagctcct cacctcatgc ctccccatt cttggtggat gtcgatggaa atcctcatcc 180
 tacaaaattt caacggctgg taccaggacg ggaaaactgt aaagatgaac aacttattcc 240
 acagttagga tatgtggcta atggtgacgg tgaggtggtg gaacaggtaa ttgggcagca 300
 aaccaatgac caagaagaaa gcattcttga tggaataatc agggagttac agagagaaca 360
 agatctcaga ttaattnatg aaggagatgt ttccacattt tccaattaat agntcatatt 420
 ctgttaatgg tgctctgagt agtccaata tgggnatacc ttctttcccc aatattggcc 480
 tcggggtagt ggcnaattn aaagggttcg gcna 514

<210> 46
 <211> 532
 <212> DNA
 <213> Mouse

<400> 46
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 atnaccgntt atcgggccct catcagagat gccataaact atgtattaga tgaacaaact 120
 caacaagctc ctcacctcat gcctccccc ttcttgggtg atgtcgatng aaatcctnat 180
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 caaaccaatg accaagaaga aagcattctt gatggnntaa ncagggnggt acnnngaggg 360
 caagntctca gatttattaa tgtaggagnt gtccacatt ttccaattaa tagatcatat 420
 ttctgttaat ggtgctctga gtagtccnaa tatgggccat accttcttcc ccaaattattg 480
 ggcttcggcg tagtggggcc aaattgnagg gtgttcnncn nntgcaaaaa ca 532

<210> 47
 <211> 648
 <212> DNA
 <213> Mouse

<400> 47
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 ctggctcgac tgtctgcagg atgcaggtgt agagggggtg gccatggtcc tgctgggaaa 180
 caagatggac tgtgaggagg agaggcaggt acccactgaa gctggcagaa ggctcgccca 240
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 gtccaatccc agactgactc ttccgggtgc ttccattcgg cttcttagac acagctggga 480
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 gaacggcagg acaaattcta gattaaactc cacacaagca aagtgtccca agtctttcat 600
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<210> 48
 <211> 654
 <212> DNA
 <213> Mouse

<400> 48
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 ctggctcgac tgnctgcagg atgcaggtgt agagggggtg gccatggtcc tgctgggaaa 180
 caagatggac tgtgaggagg agaggcaggt acccactgaa gctggcagaa ggctcgccca 240

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ggagctgggg gtgtccttcg gtgagtgcag cgcggccctg ggtcacaata tcctggagcc 300
gatgatgaac ctggctcggg cacttaagat gcaagaagac cgctgaaag cctcattggc 360
agaagtgaca caccacaaat caaccaagag agctggctgc tgccactgat caccagcacg 420
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catngaaaac ccagcagggg ccaatgtcac ctctgtccca ctgagcaaac ataccagggg 540
ttaacggcag acaaactctag atttaaactc cacacaagcn aaatgttccc caagtctttc 600
attcancccc aggtgaagag atggtagggt attcnagttt catttctgtg atgg      654

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<210> 49

<211> 639

<212> DNA

<213> Mouse

<400> 49

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gtgggacaca gctggacaag agaggtacca cagcctcaca cgacagctgc ttcgcaaggc 60
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ctggctcgac ngtctgcagg atgcagggtg agaggggggtg gccatggtcc tgctgggaaa 180
caagatggac tgtgaggagg agaggcaggt acccactgaa gctggcagaa ggctcgccca 240
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catagaaaac cagcaggggc caatgtcacc tctgtccac tgagcaaaca taccaggggt 540
gaaacggcag gacaaatcta gattaaactt ccacacaagc aaagtgtccc ccaagtcttt 600
cattcanccc caggggtgaaa gagattggta aggggtattt      639

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<210> 50

<211> 575

<212> DNA

<213> Mouse

<400> 50

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ctggctcgac tntctgcagg atgcagggtg anagggggng gccatggncc tgctgggaaa 180
caagatggac tgtgangang nnaggcnngn acccactaga agctgnncag aaggctcgcc 240
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cggtcenatc ccagantgan tcttccgggt ggcttccatt cgggcttctt ngacacagnt 480
gggacatagn ngacccagna tggggccnat ttnaccttct ggcncannn gagcaaakat 540
accagggngg aacggcaggg accaaattcn agatt      575

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<210> 51

<211> 566

<212> DNA

<213> Mouse

<400> 51

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agagggggtg gtgctcatgt atgacgtcac ctccaagag agcttcaccc acgtgcggtta 120
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gtccaatccc agactgactc ttccggtggc ttccattcgg cttcttagac acagctggga 480
catagaaacc cagcaggggg ccaatgtcac ctctgcttcc actgagcaaa cataccaggg 540
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<210> 52

<211> 543

<212> DNA

<213> Mouse

<400> 52

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gtatgaacac acatacacac aaacacaaaa aagatataag agacacaaag ttgctcctct 480
ttgtcatata agagcattaa aaaagggtggc tgtgtagaag ccaggagccc acacaccaga 540
tct 543

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<210> 53

<211> 543

<212> DNA

<213> Mouse

<400> 53

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tccgtgccaa gtatgagagg caagaattcg ttcatgtgga gaagcaggaa ccatactcta 240
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ngggctgggg attanccctt ctactgtgtg tngngcctg ctttcagcnc catccccatc 480

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agtcctttca gagagcagcc cttangangg atnccctctg ggggaaaaaa ccanaaatgn 540
ata 543

<210> 54

<211> 540

<212> DNA

<213> Mouse

<400> 54

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<210> 55

<211> 546

<212> DNA

<213> Mouse

<400> 55

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gtgtatgcct gaaccgaagc ttgcttccta tggggncttc ctcaagatgg agnnccngcn 540
ttttnt 546

<210> 56

<211> 614

<212> DNA

<213> Mouse

<400> 56

tngtgcgaga tgccaccgca gaaggacaaa atggcagtgg cagcccagcc ccagccccag 60
cgccagcaat tgccccatt tctccaccat gttcttctat ggctcaaata cctaaagcaa 120
cccaacctga ggtggatctt cctcaaagtt ctggaaactt caaaaaagaa gagctgggcta 180


```

cacgcctgtc ccagggccatt gcaggtgggg atgagaaagc agcggcccaa gtggcagcag 240
tcctggcgca natcatgtgg ctctcaatgt ccagctcatg gaggcctggt tcccaccagg 300
tcccataagg ctacaagtca cagttgaaga cgccacatcg gttttgtcct cttcatcgtc 360
tgcccatgtc tcaactgaaga tccaccaca ttgtccatt gcagcccttc aggatcaggt 420
gttctcagag ttccggtttcc caccagctgt gcagcgctgg gtcattgggc ggtgcctgtg 480
tatgnctga acgaagcctt gcttctatg gggctctctca agatggagaa cctgcttttc 540
tttacttgcn ctggcccccga gaagaagttt caggacaaag ctttcaaaat tccaagatgg 600
accgggaaat tagg 614

```

<210> 57
 <211> 520
 <212> DNA
 <213> Mouse

```

<400> 57
tntgtngcga gatgccaccg cagaaggaca aaatggcagt ggcagcccag cccagcccc 60
anccccagca atgtgcccc tttctccacc atgttcttct atggctcaaa tacctaaagc 120
aaccacaact gaggtggatc ttctcacaag ttctggaatc ttcaaaaaag aagagctggc 180
tacacgcctg tcccaggcca ttgcaggtgg ggatgagaaa gcagcgcccc aagtggcagc 240
agtctggcg canatcatgt ggctctcaat gtccagctca tggaggcctg gttccacca 300
gggtccataa ggctacaagt cacagttgaa gacgccacat cggttttgtc ctcttcacgc 360
tctgcccata tctcactgaa gatccaccca cattgctcca ttgcagccct tcaggatcag 420
gtgttctcag agttcgggtt cccaccagct gtgcagcgct gggtcattgg gcggtgctgt 480
gtatgcctga acgaagcctt gcttctatg ggggttctca 520

```

<210> 58
 <211> 529
 <212> DNA
 <213> Mouse

```

<400> 58
tgagtgcgng nngccnccgc ngcnggccac nntggcagt gcagcccggc cccagcccn 60
gccnccgenn tgtgcccctt ttctccnccn tgttcttctn tggtcanat ccctanagcn 120
gccnccctg cgggtggttct tctccangt tctggncact tcnnnnangn ngngctggct 180
ccnccctgt cccnggccnt tgcnggtggg ggtgngcnag cngcgcccca ggtggctgca 240
gtcttgccgc ngatcctgtg gctctcaatg tcnngctcct ggnggcctg tccccccng 300
gtcccnntag ggcttacnng tcnnggttgg ngncgccacg tcgggttttng ncctcttcgt 360
cgttngccca tgtctcactg ngggctccnc cccancnttg gctcccgtn gnggcccttt 420
ccaggggtcc gggngttcnc cngnggttng gggtttnc cccacaaan gnnncnctgg 480
gggncctttg ggaaggntcc nnattnanan anncttngtn acaaagngc 529

```

<210> 59
 <211> 400
 <212> DNA
 <213> Mouse

<400> 59

gtttgagggc tccctcaata tggacctgaa tgagatcage atgaacttgg ttcctttccc 60
 gaagcttcat tatctcgtgt caagcctgac acctctgtac acgctggccg atgttaacat 120
 tccccccga agactggatc agatgttttc agacgccttt agtaaggatc accagctcat 180
 ccaagcagac cccagacata gcctctacct tgcctgtgcc ctcctcgta gaggaaacgt 240
 acagatttcc gatcttcgca gaaatattga aagattaaaa cctgctctgc agtttgtctc 300
 ctggaatcaa gaangctgga anacacctgt gttctgtacc gcctgtgggc cactcgcat 360
 ctctgttact ttagcaaata acacgtgtgt gaacctacct 400

<210> 60

<211> 293

<212> DNA

<213> Mouse

<400> 60

aagaatttaa ggtagaaaga gtccctctaa ctgattattg cttctttatt ttcctgactc 60
 ttntggctca ggagaaatat gaccagaaat tccataactg ctctgtgtt tttctccttc 120
 ccagctcacg gatgattgac atccagacca agatgactga gcgagcgctg gagctcctct 180
 gtttaccaga gggtcagcct tcttacctgt tagacattgg atgccgcctt ggaccgagat 240
 acagaggggg acctgctgct aggggacatg ggccagggcg ttcccccccc ttt 293

<210> 61

<211> 645

<212> DNA

<213> Mouse

<400> 61

taagaattta aggtagaaag agtccctcta actgattatt gcttctttat tttcctgact 60
 cttntggctc aggagaaata tgaccagaa tccataact gctcctgtgt tttctcctt 120
 cccagctcac ggatgattga catccagacc aagatgactg agcgagcgct ggagctcctc 180
 tgtttaccag agggtcagcc ttcttacctg ttagacattg gatgccgctt tggaccgaga 240
 tacagagggg gacctgctgc taggggacat gggccagggc gtccctttca gaccgggctc 300
 ttttgatggc tgcacagca tctctgctgt gcagtggctc tgcaacgcca acaagaagtc 360
 ggacgtccct gccaggcgcc tgtactgctt cttttcttcc ttgtactctg cccttgctcc 420
 tggggcccga gctgtcctgc agctgtaccc tgagaactcg gacgaggtga gcagctggag 480
 ctgatcaca cccaggccac gagggcaggc ttcactggcg gcgtgggtgg agacttcccc 540
 aacagtgcc aagcaaagaa gttctanctc tgtctgtttt ctgggcttcc anctccctgc 600
 caaaagggct gactgaaagt caggatgcag accaaggctc cgaat 645

<210> 62

<211> 602

<212> DNA

<213> Mouse

<400> 62

```

aagaatttaa ggtagaaaga gtccctctaa ctgattattg cttctttatt ttcctgactc 60
tnttggtcta ggagaaatat gaccagaaat tccataactg ctctgtgtt tttctccttc 120
ccagctcacg gatgattgac atccagacca agatgactga gcgagcgctg gagctcctct 180
gtttaccaga gggtcagcct tcttacctgt tagacattgg atgccgcctt ggaccgagat 240
acagaggggg acctgctgct aggggacatg ggccagggcg tccctttcag accgggctct 300
tttgatggct gcatcagcat ctctgctgtg cagtggctct gcaacgcca caagaagtcg 360
gacgtccctg ccaggcgctt gtactgcttt nttcttcct tgtactctgg ccttgctcct 420
gggcccgaan tgcctcgnag ctgtaccctg ngaantcgga gnaggttagc agcttgagct 480
atcanaaacc canggccacn agggngggct tcaactggcg nntgggtggg agaattcccc 540
caacagtgcc aaaagcnaaa ggaggttcta ccnccgnntt gttnttgggg cttccaacnc 600
cc                                                                 602

```

<210> 63

<211> 525

<212> DNA

<213> Mouse

<400> 63

```

aaagaattta aggtagaaag agtccctcta actgattatt gcttctttat tttcctgact 60
nttttgggtct aggagaaata tgaccagaa tccataact gctcctgtgt tttctccttc 120
cccagctcac ggatgattga catccagacc aagatgactg agcgagcgct ggagctcctc 180
tgtttaccag agggtcagcc ttcttacctg ttagacattg gatgccgcct tggaccgaga 240
tacagagggg gacctgctgc taggggacat gggccagggc gtccctttca gaccgggctc 300
ttttgatggc tgcacagca tctctgctgt gcagtggctc tgcaacgcca acaagaagtc 360
ggacgtccct gccaggcgcc tgtactgctt cttttcttcc ttgtactctg cccttgctcg 420
tgggggccga gctgtcctgc agctgtaccc tgagaactcg gagcagggtga gcagctggag 480
ctgatcacia nccaggccac gagggcaagc ttcactggcg ggggtt                    525

```

<210> 64

<211> 582

<212> DNA

<213> Mouse

<400> 64

```

naagaattta aggtagaaag agtccctcta actgattatt gcttctttat tttcctgact 60
ctnctgggtct aggagaaata tgaccagaa tccataact gctcctgtgt tttctccttc 120
cccagctcac ggatgattga catccagacc aagatgactg agcgagcgct ggagctcctc 180
tgtttaccag agggtcagcc ttcttacctg ttagacattg gatgccgcct tggaccgaga 240
tacagagggg gacctgctgc taggggacat gggccagggg gtccctttca gaccgggctc 300
ttttgatggc tgcacagca tctctgctgt gcagtggctc tgcaangcca acaagaagtc 360
ggacgtccct gccaggngcc tgtactgctt cttttcttcc ttgtactctg cccttgctcg 420
tgggggccga gctgtcctgc agctgtaccc tgagaactcg gagcangtga gcagctggga 480
gctgatcaca annanggca cgaggggang nttcactggc gggcggtggg ggtagacttt 540
cccaaaagtg ncaaaagcaa gaagttctac ctctgtctgt tt                    582

```

<210> 65
 <211> 523
 <212> DNA
 <213> Mouse

<400> 65
 ggaagcccta cggggccgac gacttcctgc ctgtgctcat gtacgtgctg gcctgcagca 60
 acctcactga gatgctcctc aacgtggagt acatgatgga gctcatggac cccgccctgc 120
 agttaggaga ggggttcctac tatctgacca ccacctacgg agccctggag cacattaaaa 180
 actatgacaa gatcacagtg acccgacagc tgagcgtgga ggtgcaggac tccatccatc 240
 gctgggaacg caggcgcacg ctcaacaaag cgcgggcctc ccgctcctct gtgcaggact 300
 tcatctgtgt gtcctacctg aagcccgagc agcagtcacg gacactggcg tcacgggcag 360
 acacagcagc ccaggcactg tgtgcacagt gcgctgagaa gtttgagggtg tcacagcccc 420
 aagactaccg gctcttcgtg ctgggtggacg ggcgctgctt ccagctggcc gacgaggggt 480
 ctgccgcacg ggatcaaggg ttatctgttt cggagcgagc cca 523

<210> 66
 <211> 662
 <212> DNA
 <213> Mouse

<400> 66
 ggagccctgg agcacnttaa aaactatgac angatcacng tgacccgaca gctgcgcgtg 60
 gaggtgcagg actccatcca tcgctgggaa cgcaggcgca cgctcaacaa agcgcggggc 120
 tcccgtcctt ctgtgcagga cttcatctgt gtgtcctacc tgaagcccga gcagcagtcn 180
 cggaccctgg cgtcacgggc agacacagca gcccaggcac tgtgtgcnca gtgcgctgag 240
 aagtttgagg tgtcacagcc ccaagactac cggctcttcg tgctggtgga cgggcgctgc 300
 ttccngctgg ccgacgaggc tctgccgat cgcacangg gttatctgct tcggagcgag 360
 cccaaacgag acttcactt cgtgtaccgg ccccaggaca gcggccagga tgcttcaagc 420
 cagccctgta tagtagtgcg gggnncccaa cttcctntaa gctgtggtgg caggatcttc 480
 ctgagaggag gctaaagggn ttgganctgg gctctcaatt ggccgctctc cttaaccaca 540
 catccctgcc aatctaggtg gctgtgtcag tcacctnggt ntaacggccc nttgagcctg 600
 cttaagccaa tcnnggtaga gntattngcc tganggcacc anttcttttag tttgnatggt 660
 an 662

<210> 67
 <211> 589
 <212> DNA
 <213> Mouse

<400> 67
 ggagccctgg agcacattaa aaactatgac aagatcacag tgacccgaca gctgagngtg 60
 gaggtgcagg actccatcca tcgctgggaa cgcaggcgca cgctcaacaa agcgcggggc 120
 tcccgtcctt ctgtgcagga cttcatctgt gtgtcctacc tgaagcccga gcagcagtc 180
 cggacactgg cgtcacgggc agacacagca gcccaggcac tgtgtgcaca gtgcgctgag 240

```

aagtttgagg tgtcacagcc ccaagatacc ggctcttcgt gctgggtggac gggcgctgct 300
tccagctggc cgacgaggct ctgccgcac ccatcaaggg ttatctgctt cggagcgagc 360
ccaaacgaga cttccattcg tgtaccggcc ccaggacagc ggcaaggatg cttcaagccc 420
agccctgtat antantgagg gaaccaattc ctantagctg tgggtgggcag atctcctgna 480
aaggagctan aggatttgga ntgggggtctc aattggccgc tcttcctttt accacaaatc 540
cctgccaaac ttaagggcct gtgtcaatcc ananngtgtt naaccccca 589

```

<210> 68

<211> 520

<212> DNA

<213> Mouse

<400> 68

```

tnnccagaga acctataggg actgtttggg agtaccgggg ctgtcagtta gctgtgtagc 60
ctnaccagcc actttctcct ctgagtcacc ctgcccttgc tattgcttta gagggggaa 120
cagagtccctg ccttccctgg ggccagtggg gttctggtag ctataacttg ttctacctag 180
ccctccagga ccagcccca tgtaagaggg tcatggaggg aagaaaattg ggtagtgtgt 240
gccaaagtgt ctgactaccg tgcggantga aatatgacag caacaggccc aaccgagtct 300
gcctgacctg ctacacattt ctactggaa acgtactccc tcaaggcaag gaggacaaga 360
ggcggggcat cttggagaaa gaggcctcag cagcaccga gcagagtctg gtgtgcagct 420
tcctgcagct cataggggac aagttcagca ggagccttcc ccgggagctg gtgtgttgan 480
ccccgggat ngacccctt gtcctgtatg tcnatggagc 520

```

<210> 69

<211> 522

<212> DNA

<213> Mouse

<400> 69

```

gttttggttaa ggcatattgc aggactcaat gccaatagag ccaaaaatat tattgagtgg 60
cgagagaaaa atggcccttt catlaaccga gaacagttga agaagggtga agggcttggg 120
ccaaaatcct tccagcagtg tgctggcttc gtcaggatca accaggatta catccggaca 180
ttctgcagtc aacacactga ctcttcaggc cagagccagg aaactgccat ggtcacaaat 240
gagaagctgg gcaaaaagaa gaacaangca gatgccaccc tcataccaaa cccactggac 300
cagacttgca tccatccgga atcctatgac atagcagtca ggtttttatc gttcattggg 360
gggacaatgt gtgagattgg aaagcctgaa atgcagcaga aaataaacgt gtctctcggg 420
aaagaagggc atagagggaa ctgctgaaa gttacagaca actgtgcaca cactgcaggt 480
catcatagat ggactgagcc agccccaaaa ncttttgaca tc 522

```

<210> 70

<211> 538

<212> DNA

<213> Mouse

<400> 70

```

ggccaccaat gtggcagaga cttccatcac aatcagtggc attgtgtatg tgatngactg 60
tggctttatg aagctgcgag cctacaaccc caggacagct attgaatgct tgggtggtggt 120
accagtgtct caggcgctcag caatcagcgg gcaggacgtg gtgggcgcaa ccgctcggga 180
aagtgtttatc gcctttacac agaggaagcc tttgaccagc tacctcagtc caccgtccct 240
gagatgcagc gcanaatttg gcccccgta tctgcagct aaaagcccta gggatagaca 300
atgtcctcag gttccacttc atgtctcccc cgccagcaca gtcgatggtt caagccttgg 360
agctgctcta tgctctcgga ggtctggaca aagactgtcg cctaactgag cctcttggca 420
tgagaattgc agagtttctt ctgaacccca tgtttgcaa gatgctgctg gaatcagggg 480
aacttcggnt gttctcagga ggtcctgagt atcgnccga tgattgcaga tccanaat 538

```

<210> 71

<211> 527

<212> DNA

<213> Mouse

<400> 71

```

ggccaccaat gtggcagaga cttccatcac aatcagtggc attgtgtatg tgattgactg 60
tggctttatg aagctgcgag cctacaaccc caggacagct attgaatgct tgggtggtggt 120
accagtgtct caggcgctcag caatcagcgg gcaggacgtg gtgggcgcaa ccgctcggga 180
aagtgtttatc gcctttacac agaggaagcc tttgaccagc tacctcagtc caccgtccct 240
gagatgcagc gcanaatttg gcccccgta tctgcagct aaaagcccta gggatagaca 300
atgtcctcag gttccacttc atgtctcccc cgccagcaca gtcgatggtt caagccttgg 360
agctgctcta tgctctcgga ggtctggaca aagactgtcg cctaaactga ngctcttgg 420
gcatgagaat tgcagagttt tctctgnacc ccattgtttg gccaatgagc tgctggaatc 480
aggggacttt cgggctgttc tcaggaggtc ctgaagtatt ngccgcc 527

```

<210> 72

<211> 691

<212> DNA

<213> Mouse

<400> 72

```

aggaagcctc aagaagatgg ctgtctccac ttagctaaaa caccatctcc aaaggcttga 60
naaagagagc tgttcagctt ccagaaacag ctaagatanc tgtgccctct ggagctaagc 120
tagcttagct agcctccatc tcaggggctc agttcccta ccaggctctc cttagtagca 180
catgacggag ctacatagcc tatntgcatg tgtacctgtt tccatagtct ttngcatgtg 240
gattgctgag gagaggaggt cttgtttcct tganaacaga agcnntgaag caaaggctat 300
ttatcccttn gcnttctcac catcacgggt tgccancagc atggccctgc gcatgcngn 360
anctaatecn nnaatgtgna agtggcaggt gacacaggag caacaatgga gccagatttc 420
ctggggggga nagcagctctc ctgagntctc ttttcctagc tggaaaacca aaacgtttta 480
tcagggattc ccttnccttt anngtgnccc agnttccna angnatttcc ccnaagtagg 540
aaggggcaag gggcaagggt gttgtntctc anggggggtt tggtnccnt tgggcnnaat 600
tttctctggc caccgttng gnacttttct taaangggcc tgggttaaaa aagggttgc 660
ctttccttaa ggggggggcc anaacntttt c 691

```

<210> 73
 <211> 585
 <212> DNA
 <213> Mouse

<400> 73
 ggaacactat aaggacccca gtgcctgtat gttctttgag ccgctcttgt ccactccctt 60
 aatccggacg tccccctttt ccttgcagca tatttgcaga acggttatTT gtaattgtac 120
 gacttacgat ggcacgatg cccttcccat tccttcgcct atgaaattgt atctgaagga 180
 ataccattat aaatcaaaag ttaggttact caggattgat gtgccagagc agcagtgatg 240
 cggagagggtt agaatgtcga cctgcataca tattttcatt taatatttta tttttcttat 300
 gcctctttga atttttgtac aaaggcagtt gaatcaaata aaactgtgcc ctaagtttta 360
 attccagatc aatttatTTT ttttatgata cacttggtat atatttttaa gcagggtgtt 420
 ggttttgttt ttaccatata aatttacata tgggtccaggg atattttacaa tttcaaggca 480
 ttgcatatac atttgaataa ttcngtatTT ttaaaaaaan cttttgntcc ttcccaaggg 540
 gtgaaatatt ttgntaant ctatggctat cagggtattcc ttggg 585

<210> 74
 <211> 549
 <212> DNA
 <213> Mouse

<400> 74
 ggcccggttca tcctggcctg agctttgttg ccctgctaag tttttaagtg ggtgtaaggt 60
 tttgtcaagc caactccatt tgcttgtctt atgtcagtt tacacagtac taggaggcct 120
 gtacctcca tggtccgtct gccattccga tacagctgtg gaccttttgc actaggtgaa 180
 ccgtcactgt gggaatgaga ccactggggc atttgccata gatcctgatc ttagctgaag 240
 tgaacaataa aatacaaatg agtggaaatt tggcaaatca aatacttggga gccaacgtgg 300
 atacattaat agattccctg cactcaggga gtgtcatgtg tttttctgac ctccaggggg 360
 cgcacagac cangtgtct ttgcttcag cggcggcaca gccagtcctc cgangattac 420
 atcttcatcc ccagaagatg caagccttca gaagantgag agatgactgc aatgtaaatg 480
 gtggggaagc ctatngnct gtgaatgaaa taaatgttcc atggtcaatt atntcaggga 540
 ccatctttg 549

<210> 75
 <211> 564
 <212> DNA
 <213> Mouse

<400> 75
 cggcgcgcan agggccgtga gtgcgacgtg tgaaaccgga gaacccatgg aggctgaaac 60
 ctgcgaccca ggaaccgaag cccatcccag gtctacctgc cnggnagagg gccgccactn 120
 ancgagggan angagctggt aatggatgaa gaggcctacg tgctgtacca tcgtgcgcaa 180
 actgactgat gatgcttcgg atgcacaatc tccatggcac caggccgtca ccctcagagg 240
 gcagtgatga cgatgaggaa natgaagatg aagangatga ggaggagcag aaacctcagc 300
 tggaactggc catggttccn canttacggt ggcacacacc ganttcgggt atcttggtcg 360

ggggangaac ctgtggctgg aattaggtca gaaaaaggcc antggtngta ttcgcantgc 420
 ggcggtctnct gcagtgggtg gatnaccccc aaggcntggc natcttntc cgatatganc 480
 cangccgaan aaaaccanc ttctcctttg ctngccaaan ggganagggc tttctcttga 540
 atngtanccn tcgggtnacc gggn 564

<210> 76

<211> 523

<212> DNA

<213> Mouse

<400> 76

cgccggcaag ggccggagtc gcacgtgtga aaccggagaa cccatggagg ctgaaacctg 60
 cgaccagga accgaagccc atcccaggtc tacctgcccg gcagagggcc gccactgagc 120
 gagggagagg agctggtaat ggatgaagag gcctacgtgc tgtaccatcg tgcgcaaact 180
 gactgatgat gcttcggatg cacaatctcc atggcaccag gccgtcacc ctagagggca 240
 gtgatgacga tgaggaagat gaagatgaag aggatgagga ggagcagaaa cctcagctgg 300
 aactggccat ggttcctcac tacggtggca tcaaccgagt tcgggtatct tggctggggg 360
 aggaacctgt ggctggagta tggtcagaga agggccaagt gaagtgttcg cactgcggcg 420
 gtcctgcaa gtggtngatg accccaagc cctggccatc ttcctccgag atgagcaggc 480
 ccgaataaaa cccatcttct cctttgctgg ccacatggga gag 523

<210> 77

<211> 509

<212> DNA

<213> Mouse

<400> 77

ccggcgccga agccctcaat ggccagtcgg acttccccta tctgggcgct ttcccatna 60
 atccaggcct ctteatcatg accccagctg gcgtgttcct ggctgagagt gcactgcaca 120
 tggctggcct ggccgagtag cccatgcagg gagagctggc ttccgccatc agctcaggca 180
 agaagaagcg gaaacgctgc ggcatgtgtg cgccctgccg gcggcgcatc aactgtgagc 240
 agtgcagcag ttgtaggaac cgaaagactg gccatcagat ttgcaaattc agaaagtgtg 300
 aagaactcaa aaagaagcct tccgctgctc tggagaaggat gatgcttcg tcgggagccg 360
 ccttcgggtg gtttcagtga ttccagtac ggccgggaac ccaaagctgc cctctccgtg 420
 caatgtcact gcccgctggg tctcggcaag ggattcgggc gaagacaaac ggatgcaccc 480
 gtcttttagaa ccaanaatat tctctcaca 509

<210> 78

<211> 364

<212> DNA

<213> Mouse

<400> 78

gacnetctng tttggngtgc tnttttnntn tgcgttctg cngtttacnn anggcngngc 60
 ccnggtctn ntgcataatc tgatcgaaan gtttenacaa ntatecgna ttcnctttcc 120


```

acctgtcgtn ctggccgnc tctatgcac gattntagga ccctgagacc tcttctancc 180
caggaccttt ataccctct aaccatnaaa agatcaacct ttggaancct tagtacantc 240
canccgacnn cagaaacaaa aatctcaata tttggganaa ggactagcgg acatggatcc 300
atcaaatant cgncttggtt tattttccgg ttctgaacaa atctgcgacc ctaaaacnct 360
naat 364

```

<210> 79
 <211> 517
 <212> DNA
 <213> Mouse

```

<400> 79
ggctgcggaa agggggcctg agggctcctc tccggaagct gtgccagggg acgcgaccat 60
ccccagggtg aaactcctgg acgccatagt agacactttc ctccagaagc tagtcgccga 120
caggagctac gagaggttca ccacctgcta caaacacttc caccagttga accctgaggt 180
gacgcagagg atctatgaca agtttgtggc tcagttgcag acatccatcc gcgaggaaat 240
ctcagaaatc aaagaggagg ggaacctaga agctgtcctg aactccctgg ataagatcat 300
agaagaaggc agagagcgcg gagagccagc ctggcgacc cagtgaatcc cagagaaaga 360
cctgtgtagt gtcattggac cctacttcct gaagcaacag gataccctgt gtcattcaagt 420
acggaaacag gaagccaaga accaggaact ggccgacgct gtcctggccg ggccgaggca 480
ggtggaggag ctgcagcagc aggttcgggc cctccan 517

```

<210> 80
 <211> 532
 <212> DNA
 <213> Mouse

```

<400> 80
acaggatatt atgagcttat accaggaccc agatggaacc cgaaagctac tgaacttcat 60
gcttgacaat cttgcagttc atccaganca gcttcctccg aggccatgga ttacattaan 120
agaacgagnc caaattctgc catcagcatc attcacggtt atgtgttaca angtgntatg 180
tgataaatat gctaccaggc agctatatgg ctattgnccg tcctgggcat taaactggga 240
atacaggnaa naggnatta tggnaaaat tgttaactgg gacgcagata tcattagtct 300
tcaggaaagt gaaacagagc aatactttan tcnctntctg ccagcattga aggatcgtgg 360
atatgatgga tttttttctc caangtcacg tgccaaaatc atgtctgagc aggacngaaa 420
gcatgtggat ggttgtgcaa tattcttcaa aacngaaaaa tttacattgg tgcagaagca 480
tacagtggaa ttcaaccagg tagcaatggc aaattcagat gggttccgaa gc 532

```

<210> 81
 <211> 531
 <212> DNA
 <213> Mouse

```

<400> 81
gcagcctgcc tggggaagta agacttcaac gaaaacctga tgcgacctct cctgattgct 60

```

```

ccgggcccgat tcatttccca gttgtgttgt agacgaaagc ctctgcctc cccacaaagc 120
aagatctgcc tcaccatggc tcgnccaagt tcaaataatgg cagactttcg gaagtgtttt 180
gcgaacgcca agcacatagc catcatctcg ggggctggcg ttagtgcgga gagtggggtt 240
cccactttca gaggcgctgg aggttactgg agaaaatggc aggctcagga cctggcaacc 300
cctcaggcct ttgctcgaaa cccatcacag gtgtgggagt tttaccacta cctgaggagg 360
gtcatnnga naaagaaccc aaccccgggc acctggccat tnccagtggt gaagcccggc 420
ttcntnanca gggcanacgg gttgtggtca tcaccanaa cattgacgag ttgcatcgca 480
angcttngna ccaagaactt cttggaaatc cacgggaact tatttaaac t 531

```

<210> 82

<211> 538

<212> DNA

<213> Mouse

<400> 82

```

gnagcctgcc tggngaagta agacttcaac gaaaacctga tgcaacctct cctgantgca 60
ccgggcccgat tcanttccca gtngtattgt agacgaaagc ntcctgcntc cccacaaagc 120
aagantctgcc tcaccatggc tcgtccaagt tcaaataatgg cagactttcg gaagtntttt 180
gcnacgcca agcacatagc catcatctcg ggggctggcg ttagtgcgga gagtggggtt 240
cccactttca gaggcgctgg aggttactgg agaaaatggc aggctcagga cctggcaacc 300
cctcangcct ttntctgaaa cccatcacag gtgtgggagt tttaccacta cctgaaggag 360
gtcntgcgga cnnaagancc caaccccggg cacctggcca ttncaccagt gtgnagccgg 420
cttcgtngac cngggcgga ggttngtgc atccccgan cattgncggg ttgnatcngc 480
naggctngca ccaagaactt ctgggaantc ccnnggnac ccttnntttt ttccctca 538

```

<210> 83

<211> 562

<212> DNA

<213> Mouse

<400> 83

```

gcagcctgcc tggggaagta agacttcaac gaaaacctga tgcgacctct cctgattgct 60
ccgggcccgat tcatttccca gttgtgttgt agacgaaagc ctctgcctc cccacaaagc 120
aagatctgcc tcaccatggc tcgtccaagt tcaaataatgg cagactttcg gaagtgtttt 180
gcgaacgcca agcacatagc catcatctcg ggggctggcg ttagtgcgga gagtggggtt 240
cccactttca gaggcgctgg aggttactgg agaaaatggc aggctcagga cctggcaacc 300
cctaaggcct ttgctngaaa ccnatcacag gtgtgggatt tttaccacta cctgaggagg 360
gtcatgcgga aaaagnaacc ccaaccccg ggcacctggc cattccccca gtgtannnc 420
ccggtctttc gttaccagg ggnaaaaacn ggttttgtg gtcacccnc cagaaanntt 480
tgnnnggttt tntncatnnc caaaggntg ggcancceaa anaaantcnt ttgnngggna 540
aatccccgn gggggcantn tt 562

```

<210> 84

<211> 533

<212> DNA

<213> Mouse

<400> 84

```

gcagcctgcc tggggaagta agacttcaac gaaaacctga tgcgacctct cctgattgct 60
ccgggcccgat tcatttccca gttgtgttgt agacgaaagc ctctgcctc cccacaaagc 120
aagatctgcc tcaccatggc tcgtccaagt tcaaatatgg cagactttcg gaagtgtttt 180
gcgaacgccca agcacatagc catcatctcg ggggctggcg ttagtgcgga gagtgggggt 240
cccactttca gaggcgctgg aggttactgg agaaaatggc aggctcagga cctggcaacc 300
cctcaggcct ttgctcgaaa cccatcacag gtgtgggagt tttaccacta cctgagggag 360
gtcatgcgga naaagaaccc aaccccgggc acctggccat tgcccagtggt gaagcccggc 420
ttcgtgacca nggcagacgg gttgtggtca tcaccacagna acattgacga gntgcacgn 480
aagggctggc accaagaacc tttctgggaa atccacggaa cttattttaa aan 533

```

<210> 85

<211> 547

<212> DNA

<213> Mouse

<400> 85

```

tgataagtct gatgcatctc aaggggaagcc ctacacatgc agtgantgtg gggaggcctt 60
tgcntggatc tccaacctta tggagcatca caagagtcag ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgcnt gtggtcaagc accacaagaa 180
tcacatacaa aaaacaaaaa caaagccaca ctacagagccc ttctctgcca gaagcaaaac 240
tcaactggtg gagaaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tccntgaca tgacagttgt agcatgagt 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
tattttctgg angctaattg gctgaaaaga actggaaagg ggcagggccc tcntctttaa 480
aacncacttt ggtctgatgt tntattctgt aaacctcaga tgtgagggaa gactcatttc 540
tgcgtnn 547

```

<210> 86

<211> 553

<212> DNA

<213> Mouse

<400> 86

```

tgataagtct gatgcatctc aaggggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcatggatc tccaacctta tggagcatca caagagtcag ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaacaaaaa caaagccaca ctacagagccc ttctctgcca gaagcaaaac 240
tcaactggtg gagaaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tccatgaca tgacagttgt agcatgagt 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
tattttctgg atgctaattg gctgaaaaga actggaaagg ggcaggggcc tcatctttaa 480
aacacacttt ggtctgatgt tatattctgt aaacctcag atgtgagga agactccatt 540
tctgcagtat ttt 553

```

<210> 87
 <211> 475
 <212> DNA
 <213> Mouse

<400> 87
 tgataagtct gatgcatctc aaggggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
 tgcattggatc tccaacctta tggagcatca caagagtcac ggcagtgaga catgctatgt 120
 gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
 tcacatacaa aaaaccacaaa caaagccaca ctacagagccc ttctctgcca gaagcaaac 240
 tcaactggtgg gagaattggc agcttctaata gtgtgggtgg ttttctttat acgacctgag 300
 gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
 accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
 tattttctgg atgctaattgt gctgaaaaga actggaaagg ggcagggncc tcac 475

<210> 88
 <211> 560
 <212> DNA
 <213> Mouse

<400> 88
 cgctgcttgc taggtggcat ggctgaaccg gcacccgcgc tgtggccttc ggccccggat 60
 ctgactcccg cgcccgggac tccgagcgaa ntgcgcgcgc gcgggacaac tgggtgtact 120
 gggccatgct gccgcgcgca ccacctctc tgtcgtcccc agtggcgggc tcggagcaga 180
 gccggaaggg acagcctcac gngcngcccc agcctccctc cggagcgctt ccaccgttcg 240
 atgctcagat tcttcccgcg gcgcagcnac ctttcgatgc ccaggctccg cccgatgctc 300
 aatctcagtt cagnggccag caggcctgga atttgcaagc ctccacgcct tgggtactggg 360
 gattgtctcc taatggtttt tccacgtacc acacgtctta ccaatctccg gttacacatt 420
 cttattttcc acgatcacat gatgcaaaat tcaattttgc ctncaaaaca gaaaaacgga 480
 aacggaagaa aaaagaaaag gaaccggant ttccatttta tnctggggga nacctgtgan 540
 cnggggcttt aaaaaattna 560

<210> 89
 <211> 544
 <212> DNA
 <213> Mouse

<400> 89
 tgataagtct gatgcatctc aaggggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
 tgcattggatc tccaacctta tggagcatca caagagtcac ggcagtgaga catgctctag 120
 gaacccttcc agttctgctt gcttgtggtc aagcaccaca agaatacat acaaaaaacc 180
 aaaacaaagc cacactcaga gcccttctct gccagaagca aaactcactg gtggggagaat 240
 tggcagcttc taatgtgtgg gtgggtttct ttatacgacc tgaggtataa ggctaagtag 300
 ctctgctatg actgtcccat gacatgacag ttgtagcatg agtgacccta aggctcatgt 360

```

gtggtagtgg attcttgagg natttctaca ggcatactctg tgattatctt ctggatgcta 420
atgtgctgaa aagaactgga aaggggcagg ggcctcatct taaaaacaca ctttngtcng 480
atgttatant ctgtaaaacc atcagatgtg aggggagact cccattctgc agtatcttaa 540
tacc 544

```

<210> 90
 <211> 558
 <212> DNA
 <213> Mouse

```

<400> 90
tgataagtct gatgcactct aaggggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcattggatc tccaacctta tggagcatca caagagtcac ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaacccaaa caaagccaca ctacagagccc ttctctgcca gaagcaaaac 240
tcaactgggtg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
tattttctgg atgctaattg gctgaaaaga actggaaagg ggcaggggcc tcatcttaaa 480
aacacacttt gggctctgatg ttatatcttg taaaaccatc agatgtgagg gaagactcca 540
ttttctgcag tattttaa 558

```

<210> 91
 <211> 542
 <212> DNA
 <213> Mouse

```

<400> 91
tgataagtct gatgcactct aaggggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcattggatc tccaacctta tggagcatca caagagtcac ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaacccaaa caaagccaca ctacagagccc ttctctgcca gaagcaaaac 240
tcaactgggtg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
tattttctgg atgctaattg gctgaaaaga actggaaagg ggcaggggnc tcatcttaaa 480
aaacacactt tggctctgatg ttatatcttg taaaccatca gatgtgangg gagactccat 540
tt 542

```

<210> 92
 <211> 551
 <212> DNA
 <213> Mouse

<400> 92

```

tgataagtct gatgcattctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcattggatc tccaacctta tggagcatca caagagtcac ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaacaaaaa caaagccaca ctacagagccc ttctctgcca gaagcaaaac 240
tcaactgggtg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagtgtg agcatgagt 360
accctaaggc tcatgtgtgg tagtggattc ttgaggtatt tctacaggca tatctgtgat 420
tattttctgg atgctaattg gctgaaaaga actggaaagg ggcaggggcc tcatcttaaa 480
aacacacttt ggtctgatg ttaaaattct gtaaanccat cagatgtgaa gggaagacnc 540
ccatttctgg n 551

```

<210> 93

<211> 522

<212> DNA

<213> Mouse

<400> 93

```

tgataagtct gatgcattctc aagggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcattggatc tccaacctta tggagcatca caagagtcac ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaacaaaaa caaagccaca ctacagagccc ttctctgcca gaagcaaaac 240
tcaactgggtg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagtgtg agcatgagt 360
accctaaggc tcatgtgtgg tagtggattc ttgnggtatt tctacaggca tatctgtgat 420
tattttctgg atgctaattg gctgaaaaga actggaaagg ggcagggncc tcatcttaan 480
aacacacttt ggtctgatg tatattctgt aaaccatcag at 522

```

<210> 94

<211> 531

<212> DNA

<213> Mouse

<400> 94

```

gctgcttgct aggtggcatg gctgaaccgg caccgcgct gtggccttcg gccccggatc 60
tgactcccgc gcccgggact ccgagcgaan tgnccgccc gcgggacaac tgggtgtact 120
gggccatgct gccgcgccca ccacctctc tgcctgcccc agtggcgggc tcngagcaga 180
gccggaaggg acagcctcac gtgctgcccc agcctccctc cgnagcgctt ccaccgttcg 240
atgctcagat tcttcccgcg gcgcacttcc tttcgatgcc caggctccgc ccgatgctca 300
atctcagttc agcggccagc aggcctggaa tttgcaagc tccacgcctt ggtactgggg 360
attgtctcct aatggttttt ccacgtacca cagctcttac caatctccgg ttacacattc 420
ttattttccn cgatcacatg atgaaaattn aatttgctca aaacagaaaa acagaaaacg 480
aagaaaagaa angganccggg tttncatttt tcngtganac cgtgaacggg g 531

```

<210> 95

<211> 581

<212> DNA

<213> Mouse

<400> 95

```

tgataagtct gatgcattctc aaggggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcattggatc tccaacctta tggagcatca caagagtcac ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccacaaa caaagccaca ctacagagccc ttctctgcca gaagcaaaac 240
tacttggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggtatc ttgaggtatt ctacaggcat atctgtgatt 420
atcttctgga tgctaattgt ctgaaaagac tgggaaaggg cagggcctca tcttaaaac 480
acactttggg tctggtgttt atatctgtna aaacancna tgtganggga ggntccatt 540
ctgcantatt ttaanaccat ttatantctg ggnccaattg g 581

```

<210> 96

<211> 528

<212> DNA

<213> Mouse

<400> 96

```

tgataagtct gatgcattctc aaggggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcattggatc tccaacctta tggagcatca caagagtcac ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccacaaa caaagccaca ctacagagccc ttctctgcca gaagcaaaac 240
tacttggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggtatc ttgaggnatt tctacaggca tatctgtgat 420
tattttctgg atgctaattgt gctgaaaaga actggaaagg ggcaggggcc tcatcttaa 480
acacactttg gtctgangtt anattctgta aacntcngat gtggaggg 528

```

<210> 97

<211> 571

<212> DNA

<213> Mouse

<400> 97

```

tgataagtct gatgcattctc aaggggaagcc ctacacatgc agtgaatgtg gggaggcctt 60
tgcattggatc tccaacctta tggagcatca caagagtcac ggcagtgaga catgctatgt 120
gagccagggc tgctaggaac ccttccagtt ctgcttgctt gtggtcaagc accacaagaa 180
tcacatacaa aaaaccacaaa caaagccaca ctacagagccc ttctctgcca gaagcaaaac 240
tacttggtgg gagaattggc agcttctaat gtgtgggtgg ttttctttat acgacctgag 300
gtataaggct aagtagctct gctatgactg tcccatgaca tgacagttgt agcatgagtg 360
accctaaggc tcatgtgtgg tagtggtatc ttgangtatt tctacaggca tatctgtgat 420
tattttctgg atgctaattgt gctgaaaaga actggaaagg ggcaggggnc tcatcttaa 480
aaacacactt tggctctgatg ttatattctg taaaccatca gatgtgaggg aagactccat 540

```

ttctgcagta ttttaatacc acttatactc n

571

<210> 98
 <211> 400
 <212> DNA
 <213> Mouse

<400> 98
 cgctgcttgc taggtggcat ggctgaaccg gcacccgccg tgtggccttc ggccccggat 60
 ctgactcccc cgcccgggac tccgagcgaa gctgcgccgc cgccgggacaa ctgggtgtac 120
 tgggccaatgc tgccgcgcc accacctcct ctgtcgtccc cagtggcggg ctccggagcag 180
 agccggaagg gacagcctca cgtgctgccc cagcctcct ccggagcgt tccaccgttc 240
 gatgctcaga ttcttccgc ggcgcagcct cctttcgatg cccaggctcc gcccgatgct 300
 caatctcagt tcagcgggca gcaggcctgg aatttgcaag cctccacgcc ttggtactgg 360
 ggattgtctc ctaatggttt ttccacgtac cacacgtctt 400

<210> 99
 <211> 490
 <212> DNA
 <213> Mouse

<400> 99
 ggggatcctg ccctgatgac tccgccacca ggagccaaac ctcacaagtg tctggtctgt 60
 ggaaagggct tcaatgatga aggcattctt atgcagcacc agaggattca tatcgagag 120
 aacccttaca aaaatgcaga tggcctcata acacaccag cccccaagcc tcaacagtta 180
 cgcccttcca ggctccctt tggaggcaat tcacnccag gtgcttcaga gannagant 240
 gancccccag ganagnctc gnaagtnccc ngnaatnang ngggctcang nccaaggann 300
 ngccaacnct ctcaaaagt ctagatgtgg tgccacngtg gnccagttt ntttaagggg 360
 tttgccctaa acagnngntt ttncggggat naaagcctt tctgggtgat gtangattgc 420
 ctggggagcg gatgancagc ncttctaacg naancctnaa tgcaggtgna aangttgctn 480
 gnttgnttcc 490

<210> 100
 <211> 495
 <212> DNA
 <213> Mouse

<400> 100
 ttngcaaga aagtgtatga gtgtaaagaa tgtggcaagg cttttggttg tcattcaaat 60
 natnagtcgc catcagaaaa tccatgctgg agagaaaccg tttaaagtga ggcctttggt 120
 caaagagcac atcttaccac acatcagaga attcacactg gtgaagaagg ccctgatgaa 180
 tgtcagagcg tggaaaagt ttcccttgaa gaccacaact atgtcgacat cagaaaatcc 240
 atactggtgt gaaatgatgg aatgtatgag gaatgtagaa tgtggctctt attcgtggtt 300
 ttattgtac ccacactgga atattcacat tagtggaag ccctgagtc cagggatgtg 360
 ggaaagtcta catctggagt gcaggcttaa ttgtcaccag agcattcata ctgaggaaa 420

aaaatagtcc aaggaatatg gaaagactat tcattggttta aagcttaaat catcatcaga 480
aatatgtact gtggn 495

<210> 101
<211> 663
<212> DNA
<213> Mouse

<400> 101
tngcaagaaa gtgtatgant gtaaagaatg tggcaaggct tttggttgct attcaaatct 60
tanacgccat cagaaaatcc atgctggaga gaaaccgttt aaatgtaggg actgtgaaaa 120
ggccttttggc caaagagcac atcttaccaa acatcagaga attcacactg gtgaagaagg 180
cctgatgaa tgtcagagcg tggaaaagtt tttccttgaa gaccacaact atgtcgacat 240
cagaaaatcc atactggtgt gaaatgatgg aatgtatgag gaatgtagaa tgtggcncta 300
atccgnggtt ttaattgtac ccacnctgg aatatcccca ttagtgggaa acccnngntt 360
cccnnggggn tttgggggaaa tncaaccatc tgggggtcnn nggntnaatt ttgnccccgg 420
ggggnnttca atncttgggg gaaaaagnaa natttcccc ngggggtttt ttggggannn 480
gtccntttc cnggggggtt taaagggctt tnaaacnccc nccccnngg ggaaaaantt 540
tgtnnccnct tggggggggg ggggnnttta acccccccg ggggnnttcc nccccnann 600
annnncccc ccgggggggg cccccgggg gtteccccnn ggggntacnc nttecccccc 660
ccn 663

<210> 102
<211> 325
<212> DNA
<213> Mouse

<400> 102
gggtcgcccc angcgtcccc cggacgcgtg ggtcgcaaga nagtgtatga gtgtaaagaa 60
tgtggcaagg cttttggttg tcattcaaat cntnttcgcc atcagaaaat ccatgctgga 120
gagaaaccgt ttaaatgtag ggactgtgaa aaggccttgg tcaaagagca catcttacca 180
aacatcagag aattcacact ggtgaagaag gccctgatga atgtcananc gtggaaaagt 240
ttttccttga agaccacaac tatgtcgnca tcagaaaatc catactggtg tgaaatgatg 300
gaatgnttgn ggatgnagat tttgc 325

<210> 103
<211> 554
<212> DNA
<213> Mouse

<400> 103
gctttctttt gtaacaaaat acctgcaatt gagaaactta caaggggaaga ggttgacttt 60
ggctcagcat cctgaagacc gggaagtcca ggatgtcact tctgttttct ctgtcatccg 120
ggggctaccg aagtgtgggc cgaagcagcc gaagtctccc caggaagctg gaaaaagcct 180
cacccccagc tcttcagtct tcaggcagag gaagaaccga tgctggaaca gcgctgcagg 240

```

ggccccacgg ccatggggccc agctcagccc tggctctttt ctggggccctc ccaggagtc 300
tcccagcccc acagaggggtt gaggtaccag ggcaaatcag ctccagccaag aggccaaacc 360
ccaggcaagg tccatcggtt tgcccactgt cggaagcgct tcccgggctg ggtggccctg 420
tggcttcatg ctcgggcgggtg ccaggcccgg ctgcctctgc cctgccatga atgcaaccag 480
cgctttcgcc acgccccctt cttagcgctg catcttcagg ttcattgctt tgcagtcgcc 540
gancctgggt tcat

```

<210> 104
 <211> 539
 <212> DNA
 <213> Mouse

```

<400> 104
gcgatggatg tggatacccc cagcggcacc aacagcggcg cgggcaagaa gcgctttgaa 60
gttaaaaagt ggaatgcagt ggccctctgg gcctgggaca ttgtggttga taactgtgcc 120
atctgcagga accacattat ggatctttgt atcgaatgtc aggccaaacca ggcgtcagct 180
acttcgaag agtgtacggt tgcattggga gtctgcaacc atgcttttca tttccactgc 240
atctctcgat ggcetcaaac gaggcagggt tgtccgttgg acaacagaga gtgggagttc 300
cagaagtatg ggcattagga aagactttcc cgcaaggcgt acccatctgt tactcgtcta 360
gtgacttctt gttaattata cattagatag aaccatggtc ctttttcgtt cctttgtttt 420
tggagtttgg tgttcccgca gccatattgt attttgtgtc aaataaagcc tttaagttgg 480
aggtggttgc tgtttcatgt atgtgggaga gtgatctgag aaggagccag aaagccaga 539

```

<210> 105
 <211> 557
 <212> DNA
 <213> Mouse

```

<400> 105
gcgatggatg tggatacccc cagcggcacc aacagcggcg cgggcaagaa gcgctttgaa 60
gttaaaaagt ggaatgcagt ggccctctgg gcctgggaca ttgtggttga taactgtgcc 120
atctgcagga accacattat ggatctttgt atcgaatgtc aggccaaacca ccgaagagt 180
tacggttgca tggggagtct gcaaccatgc ttttcatttc cactgcatct ctcatggct 240
caaacgagg caggtgtgtc cgttgggaca cagagagtgg gagttccaga agtatgggca 300
ttaggaaaga ctttcccgca aggcgtaccc atctgttact cgtctagtga cttcctgtta 360
attatacatt agatagaacc atggctcctt ttcgttcctt tgtttttgga gtttggtgtt 420
cccgagcca tattgtattt tgtgtcaa ataaagcctta agttggaggt ggttgctgtt 480
tcatgtatgt ggagagtgat ctgagaagga gccagaaagc cagaaaggca gcctcaagaa 540
gtgctctgtt cttaagg

```

<210> 106
 <211> 586
 <212> DNA
 <213> Mouse

<400> 106

gcgatggatg tggatacccc cagcggcacc aacagcggcg cgggcaagaa gcgctttgaa 60
 gttaaaaagt ggaatgcagt ggccctctgg gcctgggaca ttgtggttga taactgtgcc 120
 atctgcagga accacattat ggatctttgt atcgaatgtc aggccaacca ggcgtcagct 180
 acttccgaag agtgtacggt tgcacgggga gtctgcaacc atgcttttca tttccactgc 240
 atctctcgat ggctcaaaac gaggcagggt tgtccggttg acaacagaga gtgggagtgc 300
 cagaagtatg ggcattagga aagactttcc cgcaaggcgt acccatctgt tactcgtcta 360
 gtgacttccct gttaattata cattagatag aaccatgggc ctttttcggt cctttgtttt 420
 tggagtttgg tgttcccgca gccatattgt attttgtgtc aaataaagcc tttaagttgg 480
 aggtgggtgc tgtttcatgt atgtggagag tgatctgaga aggagccaga aagccagaaa 540
 gggcagnctc aagaagtgtc ctgttcttaa gggggacaca cttggc 586

<210> 107

<211> 535

<212> DNA

<213> Mouse

<400> 107

gggaagagtt ttgcccacca gtccaaactg gtggagcacc tgtacactca cacaggtgaa 60
 aagccatttc agtgcccaga ctgcgacaag tatttcggcc gggcttcttc cctgagcatg 120
 catcgagcca tacaccgagg ggaacggcgg catcagtgtc ctgactgtgg gaagagtttt 180
 acccagcggg ccacattggt ggcgcacatg tacactcaca caggcgaaaa gccgttccat 240
 tgccctgact gcaacaaaac tttcagccgg ccttcttccc tgagctctca ccggggccata 300
 cacagagggg aacggcctca ttgttgctct gactgtggcc gagctttcac gcacgctct 360
 ggccctcattg cccatctccg tgtccacact ggggagaagc cttactgttg tgctgattgt 420
 ggacgctgct tcagccagag ctctgggctc cgtgagcacc agcgggtggt acacagcggg 480
 gtgacccctc tcacttgcaac tcactggcgg cagagccttt gcccggggcc gcata 535

<210> 108

<211> 524

<212> DNA

<213> Mouse

<400> 108

gggaagagtt ttgcccacca gtccaaactg gtggagcacc tgtacactca cacaggtgaa 60
 aagccatttc agtgcccaga ctgcgacaag tatttcggcc gggcttcttc cctgagcatg 120
 catcgagcca tacaccgagg ggaacggcgg catcagtgtc ctgactgtgg gaagagtttt 180
 acccagcggg ccacattggt ggcgcacatg tacactcaca caggcgaaaa gccgttccat 240
 tgccctgact gcaacaaaac tttcagccgg ccttcttccc tgagctctca ccggggccata 300
 cacagagggg aacggcctca ttgttgctct gactgtggcc gagctttcac gcacgctct 360
 ggccctcattg cccatctccg tgtccacact ggggagaagc cttactgttg tgctgattgt 420
 ggacgctgct tcagccagag ctctgggctc cgtgagcacc agcgggtggt acacagcggg 480
 gtganccctc tcacttgcaac tcactggcgg agagcttttg cccg 524

<210> 109

<211> 687
 <212> DNA
 <213> Mouse

<400> 109
 gtgacaaatg ctttncccaa anntgnagtc ttattttttca tcagagaggt catacaggag 60
 ngaatcctca caactgtngt gaatgtgaca nctgcttcan cctcaanagt gatcntngag 120
 ttcacagag aattcacaca gggnaganac cttncanntg taatgaaggt gacaacgtct 180
 tttatcnaga gatccaatct tagaagcacn tcagagantt catacangag annaacctta 240
 caaatgtagc gnnatgngnn anntccttta cccacanatg nagncttngc cttcgctcnga 300
 gaagtcatac aggagngnga ccttncgagt gtngtgaatg tgacaanngc ttnaccaaca 360
 naggntacct tgtangnnat cngnaggnat cntncaggag agccacctta acagnngtgc 420
 tgactngac ananggtttt ncccncaaata ggcngtcttn gtntncatcg ggganctcct 480
 accggagggg cnnccctttca cagggtnggn gaatntggga aaantttctta ngncccaaaa 540
 ngnaagtng tcnanaacgn catngnggga cttgcggnan ccgttatngg ggtaatttnc 600
 cannnctggn nntgntngn agagnnaatt cngntccan ggaagagnga ccnancct 660
 tanttttttn ggaggagggg accncn 687

<210> 110
 <211> 562
 <212> DNA
 <213> Mouse

<400> 110
 gccggctgtg cgccttcgtg tcccactact cgagccacct gaagcggcac atgcagacac 60
 acagcgggga gaagccgttc cgctgtggcc gctgccccta cgcctcagcc cagctcgtca 120
 acctgacgag acataccgc acccatactg gcgagaagcc ctaccgctgt cccactgcc 180
 cctttgcctg cagcagcctg ggcaacctga ggcggcatca gcgcacccac acagggcctc 240
 ccactcctcc ctgcccacc tgtggcttcc gatgctgtgc tccacgacca acccggcctc 300
 ccagtcaccac agagcaggag gggacaatgc cccgacgac agaagatgc ctgatcctgc 360
 cagacttgag tcttcagtgc ccaccagggt gtgccagttt cctgccagac tgtgggcagc 420
 tgcggggtga aggggagagc ttgtgtggaa ctggatccga accactgcca gagctactgt 480
 tccccttgga cctnnccggg gctgtggaca aggaactgga ggaaggtnaa gggcannaag 540
 gctggggagc ttgccatttn tt 562

<210> 111
 <211> 559
 <212> DNA
 <213> Mouse

<400> 111
 gccggctgtg cgccttcgtg tcccactact cgagccacct gaagcggcac atgcagacac 60
 acagcgggga gaagccgttc cgctgtggcc gctgccccta cgcctcagcc cagctcgtca 120
 acctgacgag acataccgc acccatactg gcgagaagcc ctaccgctgt cccactgcc 180
 cctttgcctg cagcagcctg ggcaacctga ggcggcatca gcgnacccac acagggcctc 240
 ccactcctcc ctgcccacc tgtggcttcc gatgctgtgc tccacgacca acccggcctc 300

```

ccagtccac agagcaggag gggacaatgc cccgacgac agaagatgc ctgacccgc 360
cagacttgag tcttcatgtg ccaccagggtg gtgccagttt cctgccagac tgtgggcagc 420
tgcgggggtga aggggacagc ttgtgtggaa ctggatccga accactgcag agctactgtt 480
cccttggacc tgccggggct ntggacagga actggaagan ggttaagggc agcagggttg 540
gaacttncat gtntgggcn 559

```

<210> 112
 <211> 605
 <212> DNA
 <213> Mouse

```

<400> 112
gccggctgtg cgccttcgtg tcccactact cgagccacct gaagcggcac atgcagacac 60
acagcgggga gaagccgttc cgtgtgtggc gctgccccta cgcctcagcc cagctcgtca 120
acctgacgcg acatacccg cccataactg gcgagaagcc ctaccgctgt cccactgcc 180
cctttgcctg cagcagcctg ggcaacctga ggcggcatca gcgcacccac acagggcctc 240
ccactcctcc ctgcccaccc tgtgtgcttc gatgtgtgtg tccacgacca acccggcctc 300
ccagtccac agagcaggag gggacaatgc cccgacgac agaagatgc ctgacccgc 360
cagacttgag tcttcatgtg ccaccagggtg gtgccagttt cctgccagac tgtgggcagc 420
tgcgggggtta aggggagagt tgtgtggaa tgatcgaa cactgcagag ctactgttcc 480
cttggactgc cgggctgttg acggnactga ggaggtgagg cancagcttg gantgccatt 540
ntgggcgcn nctgcaagag aagctgaagg gtccactgg ggaccaggc ccttgtgaaa 600
aaggn 605

```

<210> 113
 <211> 616
 <212> DNA
 <213> Mouse

```

<400> 113
gccggctgtg cgccttcgtg tcccactact cgagccacct gaagcggcac atgcagacac 60
accgcgnga gaanncggtc cgtgtgtgnc gctgncata cgcctctgct catctggata 120
acctgaaacg gcaccagcnc gtccacacag gagaaaagcc ctacaagtgc nccctctgtc 180
cgtatnctg tggaaacctg gccaacctca agcntnatgg tcgcatccac tctggtgaca 240
aaccttttcg gtgtagcctt tgcaactacn gncgcancca gagtatgaac cncaaagtc 300
atntgctgcn acacacgggc gagaagcct tccgctgtgc cacctgcgc tataccacag 360
gccactggg acaactacaa gcgtcatcag aaggtgcatg gncatggtg aacaggangg 420
ctggtntctn tgcccctgag ggtgggcccc canctcatag cccaccctct gntttgagcn 480
ctcggggtcc agagcccngg gtgcngtggg tagcagggnn cttnattcag nctcaccttg 540
aantancnan ngttcntttn agnngggggn ncctgggaat tannnccna angccttcnn 600
tgaattttta tnnnaa 616

```

<210> 114
 <211> 578
 <212> DNA

<213> Mouse

<400> 114

```

gccggctgtg cgcttcgtg tcccactact cgagccacct gaagcggcac atgcagacac 60
acagcgggga gaancnttc cgctgtgccc gctgtccata cgctctgct catctggata 120
acctgaaacg gcancagcgc gtccacacag gagaaaagcc ctacaagtgc nccctctgtc 180
cgtatgnctg tggcaacctg gccaacctca agcgtcatgg tcgcatccac tctggtgaca 240
aaccttttcg gtgtagcctt tgcaactaca gctgcaacca gagtatgaac ctcaaangtc 300
atatgctgen acacangggc gagaanccct tccgntgtgc cacctgcgcc tataccacag 360
gncactggga caactacaag cgtcatcaga aggtgcatgg gcnatggtna gcanganggc 420
ctngtctctc tccccctgag gggtggncct caactgatag ccnaaactct gtttnnanta 480
cnnggggtca ntagccctng gtgntactgg gtagcagggn tcntnattna ggtntacctt 540
gaaataactt gggnnctttt aaccnggggg ctctggga 578

```

<210> 115

<211> 545

<212> DNA

<213> Mouse

<400> 115

```

gtgttctgcg tgattctact ggggtgtgtg agagaagggt agtcaagctc agaactccaa 60
acgtgtgtct tcgctggatg ctgtgaattt agctcaagca agctcagaac ttcacacatg 120
gatttagtca cctatgatga cgtgcatgtg aacttcactc aggatgagtg ggctttgctg 180
gatccttctc agaagagtct ctacaagggt gtgatgctag agacctataa gaatctcaca 240
gctatagggt acatttgga agaacatacg attgaagacc attttcaaac ttctagaagt 300
catggaaggt aattttactc tgcaagctga ggagaaaatg cctatgaaga aagtttaact 360
tgtgtacaa gtagtaaaga aaaccaatag ggtacaataa gcactgcttt cagtgatgga 420
tgtttactga ctttcataaa aatcatatat gtttatgggc agatatgtaa ctgttggttg 480
caagacattt ccattaggtc caagaccggg aaataatggg cttaacaggg tatggtactg 540
gttta 545

```

<210> 116

<211> 518

<212> DNA

<213> Mouse

<400> 116

```

gtctgagcct gccatcttgg gtccctgtgt cccagggcgt ccgttgcgga aagttgtgct 60
gggtggcgga accgagtcac aggacgctcc cagtcccatc atgggggttg tgctctttga 120
ggatgtagcc gtggacttca ccttgaggga gtggcaggac ctggacgctg ctgagaggac 180
cctgtacagg gatgtgatgc tggaaacctc cagcagcctg gtgttcctgg acccctgcat 240
tgccaaacct aagttgatct tcaatttggg gcgtggattt gggccatgga gcctagcaga 300
agcttcaagc aggagcctcc cagggtgtcc taacgtgagt actctgagtg acaccagcaa 360
gaaaattcct aagacacgtt tgcggaacct cagaaaaact aaccaaaaga caccaagtga 420
agacacgatt gaagcagaac taaaggctcg acaggaagtc tccaaaggga caacatcccg 480
tcatagaaga gccccgtaa aatctttgtg ccgnaagt 518

```

<210> 117
 <211> 520
 <212> DNA
 <213> Mouse

<400> 117
 gtgttctgcg tgattctact ggggtgttggt agagaagggt agtcaagctc agaactccaa 60
 acgtgtgtct tcgctggatg ctgtgaattt agctcaagca agctcagaac ttcacacatg 120
 gatttagtca cctatgatga cgtgcatgtg aacttcactc aggatgagtg ggctttgctg 180
 gatccttctc agaagagtct ctacaagggt gtgatgctag agacctataa gaatctcaca 240
 gctatagggt acatttgga agaacatacg attgaagacc attttcaaac ttctagaagt 300
 catggaagggt aattttactc tgcaagctga ggagaaaatg cctatgaaga aagtttaact 360
 tgtgtctacaa gtagtaaaga aaaccaatag ggtacaataa gcactgcttt cagtgatgga 420
 tgtttactga ctttcataaa aatcatatat gtttatggca gatatgtaac tgttggttgc 480
 aagacattcc attaggtcaa agacagagna ataatggctt 520

<210> 118
 <211> 545
 <212> DNA
 <213> Mouse

<400> 118
 gtgttctgcg tgattctact ggggtgttggt aganaagggt agtcaagctc agaactccaa 60
 acgtgtgtct tcgctggatg ctgtgaattt agctcaagca agctcagaac ttcacacatg 120
 gatttagtca cctatgatga cgtgcatgtg aacttcactc aggatgagtg ggctttgctg 180
 gatccttctc agaagagtct ctacaagggt gtgatgctag agacctataa gaatctcaca 240
 gctatagggt acatttgga agaacatacg attgaagacc attttcaaac ttctagaagt 300
 catggaagggt aattttactc tgcaagctga ggagaaaatg cctatgaaga aagtttaact 360
 tgtgtctacaa gtagtaaaga aaaccaatag ggtacaataa gcactgcttt cagtgatgga 420
 tgtttactga ctttcataaa aaaatcatat atgtttatgg cagatatgta actggtgntt 480
 gcaagacatt ccattaggggt caaaggcnga ggaataattg gcttaacagg natgttactg 540
 ttttaa 545

<210> 119
 <211> 585
 <212> DNA
 <213> Mouse

<400> 119
 gtctgancct gccatcttgg gtcctgtgggt ccccnngcgt ccgntncngg aanttntgnt 60
 tgttgcggan accnngtcac aagncagctc ccacatccca acntatgggg gttgtgncct 120
 ttgagagana tatacncgtg natnacnct tgaggagn gn cannancntnt gaggtgttc 180
 anagnngncn ctanangggg ntgatncngn anacctanag cagcctnnng tncctnnnga 240
 ccnntntatt nanaactntg atnatcttca ntntngngng teganntttg cnannatagc 300

ctagcagaag cttcttagca ggagcctccc aggtgtccat aangngngta ctctgagtgn 360
 caccancang aanattcctn agaaacgttt gnnccgactc annaaaacta accacnaaga 420
 caccaacntg aaganacgnt tgttgacaga ctaaaggctc gncaggaagt ntctcttccg 480
 gngggncanc cgtcntnna tanagccccg ccaaactnnt gtccggaagt canctgagaa 540
 ncaagcatca gtnatncttc natnanggn ntgtntcttc nattt 585

<210> 120

<211> 632

<212> DNA

<213> Mouse

<400> 120

gtctgagcct gccatcttgg gtcctgtggt cccagggcgt ccgttgccgg aagttgtgct 60
 ggtggcggag accgagtcac aggacgtcc cagtcccatc atgggggttg tgctctttga 120
 ggatgtagcc gtggacttca ccttgaggga gtggcaggac ctggacgctg ctcagaggac 180
 cctgtacagg gatgtgatgc tggaaccta cagcagcctg gtgttcttgg acccttgcac 240
 tgccaaacct aagttgatct tcaatttggg gcgtggattt gggccatgga gcctagcaga 300
 agcttcaagc aggagcctcc caggtgtcca taacgtgagt actctgagt acaccagcaa 360
 gaaaattcct aagacacgtt tgcggcaact cagaaaaact aacaaaaga caccaagtga 420
 agacacgatt gaagcagaac taaaggctcg acaggaagtc tccaaaggga caacatcccg 480
 tcatagaaga gccccgtaa aatctttgtg ccgcaagtca cagagaacca agnatcagac 540
 atcatacaat gatgggaatc tctatgaatg taggactgcg agaaaatttt ctgtaataat 600
 ttcaacctaa tttagcattt ccgaaggact ca 632

<210> 121

<211> 595

<212> DNA

<213> Mouse

<400> 121

gtgttctgcg tgattctnct ggggtgtgtg agagnnggtt ngtnagctc agnnctccaa 60
 acgtgtgtct tcgctggntg ctgtganttt ngctcaagca agctcagaac ttcacacntg 120
 gatttagtctn ccnatgatga cgtgcntgtg aacttctctc aggatgagtg ggctttgctg 180
 gatccttctc agaagagtct ctacaagggt gtgatgctag agacctataa gantctcaca 240
 gctatnggtt acntttgggn agnacntacg attgaagncc nttttcaaac ttctagaagt 300
 catggaagggt aatttttctc tgcaagcngn ggaganaatg cctatgaaga aagtttaact 360
 tgtgtctncaa gtagtncaga ncaccaatng ggtacaataa gcaactgctt cagtgtatgga 420
 tgttttctga ctttcataaa antcanntat gttatggcag atntgtnacn gttgtttgcn 480
 agacattccn ntaggncaaa gacagagaaa tatggcttaa cggnatgtta ctgttnaact 540
 cagcctagta ngccatgcnn tancangtgt gagtgtcttc cgccccanac cgctt 595

<210> 122

<211> 534

<212> DNA

<213> Mouse

<400> 122

```

gtgttctgcg tgattctact ggggtgtgtg agagaaggtt agtcaagctc agaactccaa 60
acgtgtgtct tcgctggatg ctgtgaattt agctcaagca agctcagaac ttcacacatg 120
gatttagtca cctatgatga cgtgcatgtg aacttcactc aggatgagtg ggctttgctg 180
gaccttctc agaagagtct ctacaagggt gtgatgctag agacctataa gaatctcaca 240
gctatagggt acatttggga agaacatacg attgaagacc attttcaaac ttctagaagt 300
catggaaggt aattttactc tgcaagctga ggagaaaatg cctatgaaga aagtttaact 360
tgtgctacaa gtagtaaaga aaaccaatag ggtacaataa gcactgcttt cagtgtatga 420
tgtttactga ctttcataaa aatcatatat gtttatggca gatatgtaac tgttgtttgc 480
aagacattcc attagggtcaa agacagagaa ataatggctt aacagggtatg ttac 534

```

<210> 123

<211> 550

<212> DNA

<213> Mouse

<400> 123

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gcagtcatga gagtttctgt gtgatgtggt atgcgtgact ctactgggtg ttgtgagagg 60
aggtttagtca agctcagaac tccaaacatg gatttactca cctatgatga cgtgcatgtg 120
aacttcactc aggaagagtg ggctttgctg gatgcttctc agaagagtct ctacaaagggt 180
gtgatggtag agacctanag gaatctcaca gctanagggt acagttggga agaacataca 240
attgaagacc atttccaaac ttctagaagt cttggaagggt aattttcctc tgcaagctga 300
tgagaaaatg cctatgaaga aagtttaacg tgtgctacaa gtagtaaaga aaaccaatag 360
ggtacaataa gcactgcttt cagttatgga tgtttattga atttcataaa atcatatang 420
tctatggcag atatgtaatt attgtttgca agactttcca ttagttcaaa gacagagaaa 480
taatggctta acagggtatg tactgnntaa atcaagccta gtagagccat gctgtacaag 540
tgcgantgtc 550

```

<210> 124

<211> 591

<212> DNA

<213> Mouse

<400> 124

```

gcagtcatga gagtttctgt gtgatgtggt atgcgtgact ctactgggtg ttgtgagagg 60
aggtttagtca agctcagaac tccaaacatg gatttactca cctatgatga cgtgcatgtg 120
aacttcactc aggaagagtg ggctttgctg gatgcttctc agaagagtct ctacaaagggt 180
gtgatggtag agacctatag gaatctcaca gctatagggt acagttggga agaacataca 240
attgaagacc atttccaaac ttctagaagt cttggaagggt aattttcctc tgcaagctga 300
tgagaaaatg cctatgaaga aagtttaacg tgtgctacaa gtagtaaaga aaaccaatag 360
ggtacaataa gcactgcttt cagttatgga tgtttattga atttcataaa atcatatang 420
tctatggcag atatgtaatt attgtttgca agactttcca ttagttcaaa gacagagaaa 480
taatgggctt aaccagggtat gttactgttt aaatcaagcc tagtagagcc atgctgtaac 540
aagtgcgant tgtcttcagt cccatatcgc cttaggccat tgcaaaaagg g 591

```

<210> 125
<211> 548
<212> DNA
<213> Mouse

<400> 125
ntcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggccaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacncc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcacc cctgtgaaaa cagtgtttcc gaagctatga 480
ccccagccaa agccgagtgg aaagtgnnac ccgaatctga cttctttggg acncgaggaa 540
agaaaacc 548

<210> 126
<211> 538
<212> DNA
<213> Mouse

<400> 126
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggccaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa agtctccctg cggataataa 180
cagcaacaac cattccttgg ggcaagcggc cgagcctcgg gccttgaggg gggccccag 240
tgacctcccc cagagtctgg atacctctct cttcttcgga acctcgggtgg ctggctacca 300
gcacagcccc ttggacatgg acgatgtctc cgcggggaac gtggggctctt ttggctcctt 360
ggccctgaaa aactcaagcc tggagccgca gtttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcacc cctgtgaaaa cagtgtctcc gagctactga 480
ncccagccaa agccgagtgg aacgtgcacc ccgaatctga cttctttgga cacgagga 538

<210> 127
<211> 535
<212> DNA
<213> Mouse

<400> 127
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggccaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360

```

gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcacc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagtgg aacgtggcac cccgaatctg acttcttttg acacg      535

```

<210> 128

<211> 533

<212> DNA

<213> Mouse

<400> 128

```

ctcaccagcc cggggcagag cgatctcagt ggggcccagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttcgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagcccc tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcacc tctgtgaaaa cagtgtctcc gagctactga 480
ncccagccaa agccgagtgg aacgtgcacc ccgaatctga cttctttgga cac      533

```

<210> 129

<211> 531

<212> DNA

<213> Mouse

<400> 129

```

ctcaccagcc cggggcagag cgatctcagt ggggcccagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttcgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagcccc tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttntgacacn cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcanc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagttg aacgtgcacc ccgaatctga cntctttgga n      531

```

<210> 130

<211> 525

<212> DNA

<213> Mouse

<400> 130

```

ctcaccagcc cggggcagag cgatctcagt ggggcccagc tcgtgtctct gttctcggat 60
gttctcggcc acggttcgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctgcgggaa gtctccctgc ggataataac 180

```

```

agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcacc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagtgg aaagtggcac cccgaatctg acttt 525

```

<210> 131

<211> 518

<212> DNA

<213> Mouse

<400> 131

```

ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tgggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctgcggggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccaagacc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa aagccgagtt ggaacgtgca ccccgaaat 518

```

<210> 132

<211> 505

<212> DNA

<213> Mouse

<400> 132

```

ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tgggtcaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctgcggggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcacc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagtng aacgt 505

```

<210> 133

<211> 521

<212> DNA

<213> Mouse

<400> 133

```

ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acgggtccgc cgcggtgctg gacacggcct tggcctaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagccctc tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagcngcag ttttgacaac cagcaataag tgactgtgga 420
cacggaagct tgaccccttc agaccctctg tgaaaaagtg tctccgagta ctgaccacgc 480
caaagccgag tggaaagtgc accccgaatc tgacttcttg g 521

```

<210> 134

<211> 554

<212> DNA

<213> Mouse

<400> 134

```

ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acgggtccgc cgcggtgctg gacacggcct tggcctaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagccctc tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagcgcgag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcanc cctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagtgg aacgtgcaac ccgaatctga cttcttggga cacgaggaag 540
aaanccagtt cggn 554

```

<210> 135

<211> 529

<212> DNA

<213> Mouse

<400> 135

```

ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acgggtccgc cgcggtgctg gacacggcct tggcctaactc tggcatcttg 120
actattgatg tgggagcctc gcgggaagtc tccctgcgga taataacagc aacaaccatt 180
ccttggggca agcggccgag cctcgggcct tgaggggggc ccccagtga cccccccaga 240
gtctggatac ctctctcttc ttcggaacct cgggtggctgg ctaccagcac agcccccttg 300
acatggacga tgtctccgcc gggaacgtgg ggctcttttg ctccttggcc ctgaaaaact 360
caagcctgga gccgcagttt tgacacccag caataagttg actgtggaca cggaagctct 420
gacccctcc agcacctct gtgaaaacag tgtctccgag ctactgaccc cagccaaagc 480
cgagtggaaac gtgcaccccc gaatctgact tctttggaca cgaggaaag 529

```

<210> 136

<211> 521

<212> DNA

<213> Mouse

<400> 136

```

ctcaccagcc cgggggnagag cgatctcagt ggggcccagc tcgtgtctct gttctcggat 60
gtgcctggcc anggttccgc cgcggtgctg ganacggcct tggncanctc tggntctcng 120
cnactntnnn atnnagcnnn nangnanntn nngctgcna tannaacagc nnnnaccatt 180
ccttggggna agcggncgag cctcgggcct tgangggggc ccccgatgac ctccccaga 240
gtctggatac ctctctcttc ttcggaacct cgggtggctgg ctaccagcac agcccttgg 300
acatggacga tgtctccgcc gggaaactgg ggtcttttgg ctcttggcc ctgaaaaact 360
caagcctgga gcngcagttt gacacccagc aataagttga ctgtggacac ggaagctctg 420
acccctccca gcacccctctg tgaaaanagt gtctccgagc tactgacccc agcnaaagcc 480
gagtgggaang tgcaccccga atctgacttc tttgggaaac g 521

```

<210> 137

<211> 575

<212> DNA

<213> Mouse

<400> 137

```

ctcaccagcc cggggcagag cgatctcagt ggggcccagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagectcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagccctc tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtng 420
acacggaagc tctgaccccc tccagcacc tctgtgaaaa aagtntctcc gagctactga 480
ncccgccaa agccgagtgg aacgtggcac cccgaatcng acttttttgg acacgaggaa 540
aggaaaccca gtttgggatt nttccancca acaag 575

```

<210> 138

<211> 552

<212> DNA

<213> Mouse

<400> 138

```

ctcaccagcc cggggcagag cgatctcagt ggggcccagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagectcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagccctc tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcacc ctctgtgaaa aaagtgtctc cgagctaata 480
acccagccca aagccgagtg gaacgtggaa cccgaatct gacttttttg gacacgagga 540

```

agaaacccng tt

552

<210> 139

<211> 554

<212> DNA

<213> Mouse

<400> 139

```
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttcgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgga gttctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg gggccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcggtggc tggctaccag 300
cacagcccc tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag tttgacaccc agcaataagt tgactgtgga 420
cacggaagct ctgaccccc ccagcaccct ctgtgaaaac agtgtctccg agctactgac 480
cccagccaaa gnccgagtgg aacgtgcanc ccgaaattga ttttttggga cagaggaag 540
aaaacccgtt tngg
```

554

<210> 140

<211> 562

<212> DNA

<213> Mouse

<400> 140

```
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttcgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgggc cttgaggggg gccccagggt ctggatacct 180
ctctcttctt cggaacctcg ttggctggct accagcacag ccccttgga atggacgatg 240
tctccgcggg gaacgtgggg ctctttggct ccttgccct gaaaaactca agcctggagc 300
cgcagttttg acaccagca ataagttgac tgtggacacg gaagctctga cccctccag 360
caccctctgt gaaaacagt tctccgagct actgaccca gccaaagccg agtggaaagt 420
gcaccccgaa tctganttct ttggacacga ggaagaaacc cagttcggat tctcccacc 480
aacaggaagc catgggtctc agaaagacac agatcttatc acggtgactg gcancctgt 540
tttggtatga acgactctgn ct
```

562

<210> 141

<211> 658

<212> DNA

<213> Mouse

<400> 141

```
ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttcgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggncctctgt ganctcganc ctcgcgga gttntccctgc ggataataac 180
```

```

agcaacaacc attccttggg gcaatcggnc gagcctcggg ccttgagggg ggcccccagt 240
gacctncccc anngtntgga tncctctctc ttcttcngaa cctcgggtggc tggctaccag 300
nncagccctc tggacnngga cgatgtctcn gccgggaacg tggggctctt tggctccntg 360
gccctgaaaa actnaagcct ggagccgcag ttngacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagnaccc ctctntnaaa acagtgtctc ccgagctact 480
gattccagga aaaaagccga gtggaacgtg naannccgna tctgnctttt tggngacgcn 540
gaaaaaacca agttcgggat tcttccancc cancagggaa cncaatgggt ntagaaagga 600
cacaggtctt tatcacggtt acctggnaac ccggtntttg gtatnaaacc cnanttcn 658

```

<210> 142

<211> 639

<212> DNA

<213> Mouse

<400> 142

```

ctcaccagcc cggggcagag cgatctcagt ggggcccagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctactag 300
cacagccctc tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttngacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcacc tctgtgaaaa cagtgtctcc gagctactga 480
ccccancnaa agccgagtgg aaagtggcan cccgaatctg actttttgga cacgangaag 540
naancnagtt cggattntcc aaccnaanag ggaagccatg ggttcagnaa nncacagatc 600
ttatcacggt gactggcann ccgttttggg attnaacgn 639

```

<210> 143

<211> 550

<212> DNA

<213> Mouse

<400> 143

```

ctcaccagcc cggggcagag cgatctcagt ggggcccagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagccctc tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcacc tctgtgaaaa cagtgtctcc gagctactga 480
ccccagccaa agccgagtgg aagtgcaccc cgaatctgac ttctttggga cacgaggaag 540
aaaccagtt 550

```

<210> 144

<211> 666

<212> DNA

<213> Mouse

<400> 144

```

gctcaccagc ccnggggcag agcgatctca gtggggccga gctcgtgtct ctgttctcgg 60
atgtgcctgg ccacggttcc gccgcggtgc tggacacggc cttggtcaac tctggcatct 120
tgactattga tgtggcctct gtgaactcga gccctcgagg aagtctccct gcggataata 180
acagcaacaa ccattccttg gggcaagcgg ccgagcctcg gcccttgagg ggggccccca 240
gtgacctccc ccagagtctg gatacctctc tcttcttcgg aacctcggtg gctggctacc 300
agcacagccc cttggacatg gacgatgtct ccgcccggaa cgtggggctc tttggctcct 360
tggccctgaa aaactcaagc ctggagccgc agtttgacac ccagcaataa gttgactgtg 420
gacacggaag ctctgacccc ctccagcacc ctctgtgaaa acagtgtctc cgagctactg 480
acnccagcca aagccgagtg gaacgtgcac cccgaatctg acttcttttg acacgaggaa 540
gaaaccagtg tcggattctc ccancaaca ggaagccatt ggtccagaan gacacagatt 600
tatcacggtg actggcacc cgtttttgga tgaaccgant tgctgttccc tgctgncct 660
gtggnn

```

<210> 145

<211> 569

<212> DNA

<213> Mouse

<400> 145

```

tcaccagccc ggggcagagc gatctcagtg gggccgagct cgtgtctctg ttctcggatg 60
tgcctggcca ggttccgccg cgggtctgga cacggccttg gtcaactctg gcatcttgac 120
tattgatgtg gcctctgtga actcgagcct cgcggggaag tctccctgcg gataataaca 180
gcaacaacca ttcttgggg caagcggccg agcctcgggc cttgaggggg gccccagtg 240
acctcccca gagtctggat acctctctct tcttcggaac ctcggtggct ggctaccagc 300
acagccctt ggacatggac gatgtctcgg ccgggaacgt ggggntcttt ggctccttg 360
ccctgaaaaa ctcaagcctg gagccgcagt tttgaacacc cagcaataag ttgactgtgg 420
acacnggaag ctctgaaccc cctccaggc acccctntgt gaaaaacagt gttctccgag 480
gctactgacc ccagccaaa aggccgantt gggaaanntg gcaaccccg aaattctgga 540
ncttcttttg ggancacgga ggaagaaa

```

<210> 146

<211> 666

<212> DNA

<213> Mouse

<400> 146

```

ctnccagcc cggggcanag cnatctcagt ggggccganc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtaactc tggcancttg 120
actattgatg tggcctcngt gaagtcgagc ctgcgggaa gtctccctgg ggntaataac 180
agcaacaacc attccttggg gcaannggc gagcctcggg ccttgagggg ggcccccant 240
gaccnncnc anngtctgga nacctcncct ttcttcggaa cctcggtggc tgggctacta 300

```

```

gcanagcccc ttgnacatgg acgangtctc ngccgggaac gtngggctct ttgggtcctn 360
gnnccctgaa aaantcaagc ctggaagccg gagttnnnc agcncagcna ataagttnnc 420
tntggacacc gnaagcncng natcccttcn gcacccctct nntgaaaana gtgtcnccgg 480
agctactgtc cnnagcncn aagncngaag tggaacgtgn caccnngaag ttctnaactt 540
tttnngggac aacnaggnan cnaaacccct aagttcngca tttntnccca nagcaaaaana 600
gganannccc nttgggggtct tcaganaagn gcccnatgat ttttaatcna ccgggngnaa 660
cttggc 666

```

<210> 147

<211> 670

<212> DNA

<213> Mouse

<400> 147

```

tcaccagccc ggggcagagc gatctcagtg gggccgagct cgtgtctctg ttctcggatg 60
tgccctggcca cgggtccgcc gcggtgctgg acacggcctt ggtcaactct ggcatcttga 120
ctattgatgt ggcctctgtg aactcgagcc tcgcgggaag tctccctgcg gataataaca 180
gcaacaacca ttccctgggg caagcggccg agcctcgggc cttgaggggg gcccccagtg 240
acctcccca gagtctggat acctctctct tcttcggaac ctcggtggct ggctaccagc 300
acagccctt ggacatggac gatgtctccg ccgggaacgt ggggtctttt ggctccttgg 360
ccctgaaaaa ctcaagcctg gagccgcagt tttgacacc agcaataagt tgactgtgga 420
cacggaagct ctgacccctt ccagcaacct ctgtgaaaac agtgtcttcg agctaataga 480
cccaagccaa angccgantt ggaacgtgca nccccgnaat ctgaactttc ttttggannc 540
acgaaggga agaaaacccc aaantttcng gnatttnttc cccaaaccca aaanaaggga 600
aanccccatt nggggttctt tcaggaaaaa gaccacccgg gantctttaa ttccaccggg 660
ggnaacttgg 670

```

<210> 148

<211> 506

<212> DNA

<213> Mouse

<400> 148

```

ctcaccagcc cggggcagag cgatctcagt ggggcccagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg gccccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcgga cctcggtggc tggctaccag 300
cacagccctt tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ggagccgcag ttttgacacc cagcaataag ttgactgtgg 420
acacggaagc tctgaccccc tccagcacc tctgtgaaaa cagtgtctcc gagctactga 480
nccccannca agccgagtg aacgtg 506

```

<210> 149

<211> 536

<212> DNA

<213> Mouse

<400> 149

```

ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gncctgaaaa actcaagnct ggagccgnag ttttnaacan cccagcaaata agttgactg 420
nnggacacgg gaagctctnn acccccctnc aggaacctct tngnnaaaaa ntgtctccga 480
ggctacttnn cccaaggca aaanccnct nggaacgtgn naccgccnat tttnt 536

```

<210> 150

<211> 515

<212> DNA

<213> Mouse

<400> 150

```

ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagcccct tggacatgga cgatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaagcct ngagccgcag tttgaacacc cagcaataag ttgactgttg 420
acacggaagc tctgacnccc tccagcacc cctgtgaaaa cagtgtctcc cgagctactg 480
acccagcca aagccgagt gaaagtggca ncccg 515

```

<210> 151

<211> 400

<212> DNA

<213> Mouse

<400> 151

```

ctcaccagcc cggggcagag cgatctcagt ggggccgagc tcgtgtctct gttctcggat 60
gtgcctggcc acggttccgc cgcggtgctg gacacggcct tggtaactc tggcatcttg 120
actattgatg tggcctctgt gaactcgagc ctcgcgggaa gtctccctgc ggataataac 180
agcaacaacc attccttggg gcaagcggcc gagcctcggg ccttgagggg ggcccccagt 240
gacctcccc agagtctgga tacctctctc ttcttcggaa cctcgggtggc tggctaccag 300
cacagcccct tggacatgga cnatgtctcc gccgggaacg tggggctctt tggctccttg 360
gccctgaaaa actcaacctg gaccgcagct ttgacacca 400

```

<210> 152

<211> 324
 <212> DNA
 <213> Mouse

<400> 152
 ggggtcgaccc acgcgtccgc tcaccagccc ggggcagagc gatctcagtg gggccgagct 60
 cgtgtctctg ttctcggatg tgcctgncca cggttccgcc gcggtgctgg acacggcctt 120
 ggtcaactct ggcatcttga ctattgatgt ggctctctgt aactcgagcc tcgcgggaag 180
 tctcctgcgg ataataacag caacaacat tccttggggc aagcggccga gcctcgggcc 240
 ttnagggggg cccaattga cttccccaga gtctggatac ctctctcttt tcggaacctc 300
 ggtggctggc tacnagnaag ccnt 324

<210> 153
 <211> 569
 <212> DNA
 <213> Mouse

<400> 153
 gacacactgg gatatgattt catgagttct cctattgtca tttctggatc ccagatgttc 60
 ttggagatct tattatcatt tctaattata attgtatttt tcacctggcc agaacacaag 120
 tgcattgatt tcaaattctg tgcaatacag aagcattttg agactcaaac acttaaacaa 180
 cataacactt taattgacat gtcatactgt aatttgacta ttattcaatg tgcgtcttaa 240
 acaatctctg aacatgaaag aatgagttcc ggacaatatt ttatttaaca cagtatatgc 300
 atctcaaagt tggaaaatgt atagtttttt tcaagagata cagaatatgc agatttttga 360
 atgctttgct ctatgcaaga tgatttaaga aaactgaaat ttgagctggg acattcagac 420
 gaatgtgaca atccatgac aatatagggg atgacaggta aagagagcaa acgttctcat 480
 caccgaatgc tagttacttg ggttaaacca tagccttgat ggctttctac aaaactggta 540
 gggacctgta gctttngggc agtttccat 569

<210> 154
 <211> 549
 <212> DNA
 <213> Mouse

<400> 154
 gacacactgg gatatgattt catgagttct cctattgtca tttctggatc ccagatgttc 60
 ttggagatct tattatcatt tctaattata attgtatttt tcacctggcc agaacacaag 120
 tgcattgatt tcaaattctg tgcaatacag aagcattttg agactcaaac acttaaacaa 180
 cataacactt taattgacat gtcatactgt aatttgacta ttattcaatg tgcgtcttaa 240
 acaatctctg aacatgaaag aatgagttcc ggacaatatt ttatttaaca cagtatatgc 300
 atctcaaagt tggaaaatgt atagtttttt tcaagagata cagaatatgc agatttttga 360
 atgctttgct ctatgcaaga tgatttaaga aaactgaaat ttgagctggg acattcagac 420
 gaatgtgaca atccatgac aatatagggg gatgacagg aaagagagca aacgttctca 480
 tcaccgnatg ctagttaact ggttaaacca tagccttgat ggctttctac aaaactgtag 540
 agacactgt 549

<210> 155
 <211> 541
 <212> DNA
 <213> Mouse

<400> 155
 gacacactgg gatatgattt catgagttct cctattgtca tttctggatc ccagatgttc 60
 ttggagatct tattatcatt tctaattata attgtatttt tcacctggcc agaacacaag 120
 tgcattgatt tcaaattctg tgcaatacag aagcattttg agactcaaac acttaaacia 180
 cataacactt taattgacat gtcatactgt aatttgacta ttattcaatg tgcgtcttaa 240
 acaatctctg aacatgaaag aatgagttcc ggacaatatt ttatttaaca cagtatatgc 300
 atctcaaagt tggaaaatgt atagtttttt tcaagagata cagaatatgc agatttttga 360
 atgctttgct ctatgcaaga tgatttaaga aaactgaaat ttgagctggg acattcagac 420
 gaatgtgaca atccatgac aatatagggg atgacaggta aagagagcaa acgttctcat 480
 caccgaatgc tagttacttg gttaaaccat agccttggat ggctttctac aaaactgtag 540
 a 541

<210> 156
 <211> 576
 <212> DNA
 <213> Mouse

<400> 156
 cctagacgct tgtggaatgt gcgtctaggt gtagttactc attgtgtggt gtgtcctttg 60
 ctccccttgc acgtcactcc tgtgtgcctg tggacactgc tctcgacagc ctcccgaccc 120
 aaggaaagaa ccgcaaggac tttccagtac acttccacct gtggccgccc tcagctgtgg 180
 gttagaaata aacactggac ctacatacta gagtgcctgg cctggctcag acgtgggctg 240
 gagcagtgtt gctgtttgaa agtgaaatct gaagctctag taactcttgg gttgcttagt 300
 ttcagcttcc cacatggaat aaataaaaaca aaataaaaaca aaagggaggt gaggttccgc 360
 cctctgagat acagactctt taaagaggat ttttattatt ctgaacctag tttcatgaga 420
 aaatatgttg agataaataa gtcaaacaat caaatgatgc agtgggggat gaaagcacat 480
 acgtttccta atgtagnatc tggggnatct tcnaatttta aaagaccgcc nggccccaat 540
 ttttnggncc nccngaaac anaattgggg ggnccn 576

<210> 157
 <211> 580
 <212> DNA
 <213> Mouse

<400> 157
 cctagacgct tgtggaatgt gcgtctaggt gtagttactc attgtgtggt gtgtcctttg 60
 ctccccttgc acgtcactcc tgtgtgcctg tggacactgc tctcgacagc ctcccgaccc 120
 aaggaaagaa ccgcaaggac tttccagtac acttccacct gtggccgccc tcagctgtgg 180
 gttagaaata aacactggac ctacatacta gagtgcctgg cctggctcag acgtgggctg 240
 gagcagtgtt gctgtttgaa agtgaaatct gaagctctag taactcttgg gttgcttagt 300

```

ttcagctttc cacatggaat aaataaaaaca aaataaaaaca aaagggaggt gaggttccgc 360
cctctgagat acagactctt taaagaggat ttttattatt ctgaacctag tttcatgaga 420
aaatatgttg aganaaataa gatcaaaca tcaaatgatg ccagtgggga tgaaagcaca 480
tacgttccta gtgtagccat tggggtatcc tctattttaa agactggctt gtctcnaatt 540
ttagttccac caggaaacat aattgttggg cccagggggn 580

```

<210> 158

<211> 537

<212> DNA

<213> Mouse

<400> 158

```

cacacccagg ggaagatcaa ggaactcatc tcaggcctga aagagagcac attgatgggtg 60
ctggtgaact acatctactt taaaggcaaa tggaagaacc ctttgaccc gaatgatata 120
tttaagtccg agttctactt ggatgagaag aggtctgtga ttgtgtccat gatgaaaact 180
ggttacctga caactcccta cttccgggat gaggagctgt cctgcactgt ggtggagctg 240
aaatacacag gaaatgccag tgccatgttc atcctccctg accagggcag gatgcagcag 300
gtggaagcaa gcttacaacc agagaccctg aggaagtggg agaactctct gaagcccagg 360
atgatacatg agctccgcct gcccaagtgc tccatctcca ccgactacag cctggagcac 420
atccttccctg agttgggcat caggggaagt cttctccaca caggctgacc tgtctgcaat 480
cacaggaacc aaggatctga gagtctctca ggtggtccac aaggctgtgc tggatgt 537

```

<210> 159

<211> 278

<212> DNA

<213> Mouse

<400> 159

```

gggtcgaccc acgcgtccgc acacccaggg gaagatcaag gaactcatct caggcctgaa 60
agagagcaca ttgatgggtg tggtgaacta catctacttt aaaggcaaat ggaagaaccc 120
ctttgacccg aatgatacat ttaagtccga gttctacttg gatgagaaga ggtctgtgat 180
tgtgtccatg atgaaaactg gttacctgac aactccctac ttccgggatg aggagctgtc 240
ctgcactgtg gtggagctga aatacacagg aaatgccca 278

```

<210> 160

<211> 518

<212> DNA

<213> Mouse

<400> 160

```

ggcacctcca ccacatggag ncccacagta gaaagtgggc cttggggaaa ctgctgntct 60
ttagtctctc gctggttcac ctacatggca gctatgctag cagtcacgtt ttgttttccc 120
aatctgcctt catctcttta ccatctgagc cagagcctca ttgctacggc gctgccttcc 180
tgtggaccca gtgctcagtg tgcatgggtg nactcangca catctggggg ggagtagaga 240
ncacgagatg ggtgacctta gganggaent cacccttacc agtgnatgac cagtgatact 300

```

```

tcaggaccat ttgtggatca agggccttat tataacgnnt gctctgcaca gaccctctct 360
atctccctga acctactcct tgtgccctgc cgtgggaacc tttctgtcc tctncaaaca 420
nggctcatna nnaggactcc aagggggaca gcaatccnga gaatccaaga accctncaga 480
atgactcact tcaggaacag annagtgtcc acactnaa 518

```

<210> 161
 <211> 532
 <212> DNA
 <213> Mouse

```

<400> 161
gtctagactg agacagatcc ttctccactc ttggccctga tgtgggcaca ggtgacagcg 60
gantganaga aatgattccc agagtaataa gatttgtggt gccttcagct ctgttcctct 120
ctcagggtccc agagaccaga gggtttttaa gaactgacca aaggaggagac ttactcccat 180
ccagctgtca ggggtgcagaa ttgaagttac tcttttccag gctgtgtccc actgcatggc 240
cccagcacta tcacaggcgc tgttggggaa tcgctcagtg tgtcatgtca atacgaggag 300
aaattcaaga ctaaggacaa attctgggtc agagggtcac tgaagggtact ctgtaaagat 360
attgtcaaga ccagcagctc agaagaagtt aggaatggcc gagtgaccat cagggaccat 420
ccagacaacc tcaccttcac agtgacctat gagagcctca ccctggagga tgcagacacc 480
tacatgtgtg cgggtggatat atcacttttt tatggctcct tgggggttcg an 532

```

<210> 162
 <211> 653
 <212> DNA
 <213> Mouse

```

<400> 162
attactgtct tgtggactca ctctagtttt ttaccttaga cgaggcttct cctgtttttg 60
aacggacacc agtggaaatg tcaaaaacag gttttgctga attttaaatt ctgaagacaa 120
aaacaacatg actaactaca tcggtaacca ttttaccctg atggaccatg agggatggca 180
agcattgttc tgacactggg cgtcgagctt ttctggantg ttcagtctga atgcttaaag 240
aacatatgga agggaaaccc ggactatgtc agactgccct ggtgtgtgtg ttgtcagagg 300
tactcgtgca atatccgtga tgtgaggact gtgggggtgt gcatgcagac tcctggctca 360
ggcagtaggc ctgtgccctg ggaaagggga tncagattct agtcagttcg ctgcctcgta 420
caaccattgc gtatgtttct ggtctcacct gaggcgtcgg acatacttta cagaaagaac 480
ttggacccaa gtgtgccaaa cactaccgct aattttacac tactttccta tcaaattttg 540
gaatttatga ccatctgtag angcagtttc ctctccgaca aggtagatga aaaggnatgt 600
naatgtctgn actggctcgg gcctgtccct cctgggatte ttccanaag cct 653

```

<210> 163
 <211> 502
 <212> DNA
 <213> Mouse

<400> 163

```

attactgctc tgtggactca ctctagtttt ttaccttaga cgaggcttct cctgtttttg 60
aacggacacc agtggaaatg tcaaaaacag gttttgctga attttaaatt ctgaagacaa 120
aaacaacatg actaactaca tcggtaacca ttttaccctg atggaccatg agggatggca 180
agcattgttc tgacactggg cgtcgagctt ttctgganag ttcagtctga atgcttaaag 240
aacatatgga agggaaaacc ggactatgtc agactgncct ggtgtgtgtg ntgtcagagg 300
tactcgtgca atatccgtga tgtgcggaact gtgggggtgt gcatgcagac tcctggctca 360
ggcagtaggc ctgtnccctg ggnaagggga tgcagattct agtcagttcg ctcgctcgta 420
caaccattgc gtangtttct ggtctcacct gaaggcgctc ggacatactt tacagnnaga 480
acttggancc caagtggtn ca 502

```

<210> 164

<211> 323

<212> DNA

<213> Mouse

<400> 164

```

gtcagaaaaac aaaccgagcg atcacagcng canccgggng gcannancag gangangagg 60
agnnngagga ngaggcagat ttggagttgg gcagacnntg agnngagcta gctgcaggac 120
gctgnngggt tncanggtc cgcgntnntc cattcattaa gtaagctcgc tgaggatcgt 180
ngcggganna tatgntgggc antngcaaan tcnatncang nagtacngat naagagatgg 240
aaacaatacc nggaagnaag cagttgcatt ctncatcct ngtnaccnag gtggagagca 300
actnaccang ggggttttttn gng 323

```

<210> 165

<211> 553

<212> DNA

<213> Mouse

<400> 165

```

caccagggtt ccgaggcccc tcctgccaga ngccctgccc gcttggtcgc tatggcaaac 60
gctgtgtgca atgcaagtgt aacaacaacc attcttctg ccacccatcg gacgggacct 120
gctcctgctt ggcggtctgg acaggccctg actgctccga ggcattgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcattcatg tgggacctgc cccccccagg 240
atgggagctg tatctgcacg ccaggctgga ctggacccaa ctgcttgga ggctgccac 300
caagaatgtt tgggtgtcaac tgctcccagc tatgtcagtg tgatctcgga gagatgtgcc 360
accagagac tggggcttgt gtctgtcccc caggacacag tgggtgcagac tgcaaaatgg 420
gaagccagga gtcccttacc ataatgccc cctctcccgt gaccataaa ctactgggt 480
gcagtgattg gcattgcagt actgggaacc ctctggttg gccctgatag cactgttcat 540
tggtaccgc cag 553

```

<210> 166

<211> 550

<212> DNA

<213> Mouse

<400> 166

caccagggtt ccgaggcccc tcctgccaga ggncctgccc gcctgggtcgc tatggcaaac 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcattgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcattcatgg tgggacctgc cccccccagg 240
atgggagctg tatctgcacg ccaggctgga ctggacccaa ctgcttgga ggctgcccac 300
caagaatgtt tgggtgtcaac tgctcccagc tatgtcagtg tgatctcgga gagatgtgcc 360
acccagagac tggggcttgt gtctgtcccc caggacacag tgggtgcagac tgcaaaatgg 420
gaagccagga gtccttcacc ataatgcccc cctctcccgt gacccatnac tcaactgggt 480
gcagtgattg gcattgcagt actgggaanc ctctgtgtgg ccctgatagc actgttcatt 540
ggctaccgca 550

<210> 167

<211> 572

<212> DNA

<213> Mouse

<400> 167

caccagggtt ccgaggcccc tcctgccaga ggccctgccc gcctgggtcgc tatggcaaac 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcattgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcattcatgg tgggacctgc cccccccagg 240
atgggagctg tatctgcacg ccaggctgga ctggacccaa ctgcttgga ggctgcccac 300
caagaatgtt tgggtgtcaac tgctcccagc tatgtcagtg tgatctcgga gagatgtgcc 360
acccagagac tggggcttgt gtctgtcccc caggacacag tgggtgcagac tgcaaaatgg 420
gaagccagga gtccttcacc ataatgcccc cctctcccgt gaccataaa ctcaactgggt 480
gcagtgattg gcattgcagt actgggaacc ctctgtgtgg ccctgatagc actgttcatt 540
ggctaccgcc agtggcaaaa ngggcaagga ac 572

<210> 168

<211> 661

<212> DNA

<213> Mouse

<400> 168

caccagggtt ccgaggcccc tcctgccaga ggccctgccc gcctgggtcgc tatggcaaac 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcattgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcattcatgg tgggacctgc cccccccagg 240
atgggagctg tatctgcacg ccaggctgga ctggacccaa ctgcttgga ggctgcccac 300
caagaatgtt tgggtgtcaac tgctcccagc tatgtcagtg tgatctcgga gagatgtgcc 360
acccagagac tggggcttgt gtctgtcccc caggacacag tgggtgcagac tgcaaaatgg 420
gaagccagga gtccttcacc ataatgcccc cctctcccgt gaccataac tcaactgggt 480
cagtgtattg cattgcagta ctgggaaccc tctgtgtggc cctgatagca ctgttcattg 540
gctaccgcca gtggcaaaag ggcaaggaac atgagcactt ggcagtgtct acagcactgg 600
ggcgttggat ggggtctgatt acgtcatgcc agatgtctct ccngctata gtcactacta 660

n

661

<210> 169
<211> 632
<212> DNA
<213> Mouse

<400> 169
caccagggtt ccgaggcccc tcctgccaga ggccctgccc cctgggtcgc atggcaaacy 60
ctgtgtgcaa tgcaagtgt aacaacaacca ttcttcctgc caccatcgg acgggacctg 120
ctcctgcctg gcgggctgga caggccctga ctgctccgag gcatgtcccc caggccactg 180
gggactcaaa tgctcccaac tctgccagtg tcatcatggt gggacctgcc acccccagga 240
tgggagctgt atctgcacgc caggctggac tggacccaac tgcttggaag gctgcccacc 300
aagaatgttt ggtgtcaact gctcccagct atgtcagtg gatctcggag agatgtgcca 360
cccagagact ggggcttggt tctgtcccc aggacacagt ggtgcagact gcaaaatggg 420
aagccaggag tccttcacca taatgccac ctctccctg acccatnact cactgggtgc 480
agtgattggc attgcagtag tgggaacct cgtgggtggc ctgatagcac tgttcattgg 540
ctaccgncag tggcaaaagg ggcaaggaac atgagcactt ggcagtggtt acagcactgg 600
ggcggcttgg atngctctga ttacgtcatg cc 632

<210> 170
<211> 536
<212> DNA
<213> Mouse

<400> 170
caccagggtt ccgaggcccc tcctgccaga ngccctgccc gcctgggtgc tatggcaaacy 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcattgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcattcatg tgggacctgc cacccccagg 240
atgggagctg tatctgcacg ccaggctgga ntggacccaa ctgcttgga ggctgcccac 300
caagaatgtt tgggtgtcaac tgctcccagc tatgtcagtg tgatctcgga gagatgtgcc 360
acccagagac tggggcttgg gtctgtcccc caggacacag tgggtgcagac tgcaaaatgg 420
gaagccagga gtccttcacc ataatgcccc cctctccctg gaccataaa tcaactgggtg 480
cagtgttgg cattgcagta ctgggaancc tcgtgggtgg cctgatagca ctgttc 536

<210> 171
<211> 550
<212> DNA
<213> Mouse

<400> 171
caccagggtt ccgaggcccc tcctgccaga ggccctgccc gcctgggtgc tatggcaaacy 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcctg ccacccatcg gacgggacct 120
gctcctgcct ggcgggctgg acaggccctg actgctccga ggcattgtccc ccaggccact 180

```

ggggactcaa atgctcccaa ctctgccagt gtcacatggtg tgggacctgc cccccccagg 240
atgggagctg tatctgcacg ccaggctgga ctggacccaa ctgcttgga ggctgcccac 300
caagaatgtt tgggtgcaac tgcctccagc tatgtcagtg tgatctcgga gagatgtgcc 360
accagagac tggggcttgt gtctgtcccc caggacacag tgggtgcagac tgcaaaatgg 420
gaagccagga gtccttcacc ataatgcccc cctctcccg gaccataac tcaactgggtg 480
cagtgattgg cattgcagta ctgggaaccc tcgtgggtggc cctgatagca ctgttcattg 540
gnaccgccag                                     550

```

<210> 172

<211> 590

<212> DNA

<213> Mouse

<400> 172

```

caccaggggt cccagggccc tcctgccaga ggccctgccc gcctggctgc tatggcaaac 60
gctgtgtgca atgcaagtgt aacaacaacc attcttcttg ccacccatcg gacgggacct 120
gtcctgcct ggccggctgg acaggccctg actgctccga ggcatgtccc ccaggccact 180
ggggactcaa atgctcccaa ctctgccagt gtcacatggtg tgggacctgc cccccccagg 240
atgggagctg tatctgcacg ccaggctgga ntggacccca ctgcttgga agctgcccac 300
caagaatgtt tgggtgcaac tgcctccanc tatgtcngtg ngatctcgga gagatgtgcc 360
accagaaac ttggggcttn tgtctgtccc ccaaggacac agttgtgnca nactgccaaa 420
attggggaag ccangagttc tttaaccaat aaattgcccc cttttccggn ggancccata 480
aaatttcnat tgggggttcaa tttgatttgg caaattntcc aggttaacttg gggaaanccc 540
ctccgntggg ttgggncccc tnngaatnan gncnaccttg tttccaattt 590

```

<210> 173

<211> 575

<212> DNA

<213> Mouse

<400> 173

```

ctagtagttt tctcctaca caagccagca agctatatcc agcaagagga atgggggaaa 60
gcaanggtga agcatttctt gcctttaaga cctcagcctc accaacagca ccagtgacaa 120
caaatccaat ggacgaaacc ctccctggaa gtatcaacat taggattctg atcccaaaat 180
tgatgatcat catcttcgga ctggctggac tgatgggaaa cgcattgtg ttctggctcc 240
tgggcttcca cttgcgcagg aatgccttct cagtctacat cctaaaacttg gccctggctg 300
acttcctttt cctcctcagt agtatcatag ctccaccct gtttcttctc aaagtcttct 360
acctcagcat catctttcac ttgtgcttta acaccattat gatggttggtc tacatcacag 420
ggataagcat gctcagtgcc atcagcactg agtgctgcct gtctgtcctg tgccccacct 480
ggtatcgctg ccancgtcca gtacatacat caactgtcat gtgtgctgtg atctgggtct 540
atccctgttg atctgcattc tgaatagcta tttcn 575

```

<210> 174

<211> 510

<212> DNA

<213> Mouse

<400> 174

```

gccctcctga tcctcccaat gaatttggaa tatttaacag tctttgggtt tccttgggtg 60
cttttatgca gcaaggatgt gatatttctc caagatcact ttctgggcgc attgttggag 120
gggtttgggtg gttcttcacc ctgatacataa tctcttccta cactgcaaac cttgctgctt 180
tcctgactgt ggagaggntg gtgcccccca tagagagcgc tgaagattta gccaaagcaga 240
ctgaaattgc atacgggacc ctggactctg gttcaacaaa agaatttttc agagtaagta 300
ctttgttgtt agttcagcct gcnggttttt atttccattt cacaaagaca aatttgcagc 360
acttttaagt gaggcttgta ggaaacttta tcaaaggaac aatgtcttaa atactgngct 420
gcttagttgt aaatcggtac ccttgccat tagactcacg ggagacataa caggtagat 480
gttgagagca ctgaatttga actcctagaa 510

```

<210> 175

<211> 549

<212> DNA

<213> Mouse

<400> 175

```

gccctcctga tcctcccaat gaatttggaa tatttaacag tctttgggtt tccttgggtg 60
cttttatgca gcaaggatgt gatatttctc caagatcact ttctgggcgc attgttggag 120
gggtttgggtg gttcttcacc ctgatacataa tctcttccta cactgcaaac cttgctgctt 180
tcctgactgt ggagaggatg gtgcccccca tagagagcgc tgaagattta gccaaagcaga 240
ctgaaattgc atacgggacc ctggactctg gttcaacaaa agaatttttc agagtaagta 300
ctttgttgtt agttcagcct gctgggttttt atttccattt cacaaagaca aatttgcagc 360
acttttaagt gaggcttgta ggaaacttta tcaaagaaca atgtcttaaa tactgtgctg 420
cttagttgta atcggtacca ttgtccatta gactcacggg gagacataac aggtgagatg 480
ttgagagcac tgaatttgaa ctccatagatt ttaatttcaa ccctgctata aagtgatatt 540
ggtcctnngg 549

```

<210> 176

<211> 565

<212> DNA

<213> Mouse

<400> 176

```

gccctcctga tcctcccaat gaatttggaa tatttaacag tctttgggtt tccttgggtg 60
cttttatgca gcaaggatgt gatatttctc caagatcact ttctgggcgc attgttggag 120
gggtttgggtg gttcttcacc ctgatacataa tctcttccta cactgcaaac cttgctgctt 180
tcctgactgt ggagaggatg gtgcccccca tagagagcgc tgaagattta gccaaagcaga 240
ctgaaattgc atacgggacc ctggactctg gttcaacaaa agaatttttc agagtaagta 300
ctttgttgtt agttcagcct gcnggttttt atttccattt cacaaagaca aatttgcagc 360
acttttaagt gaggcttgta ggaaacttta tcaaagaaca atgtcttaaa tactgtgctg 420
cttagttgga aatcggtacc atgtccatta gactcacggg ggacataaca ggtgagatgt 480
tgagagcctg aatttgaaac tcctagattt aatttccaaa ccnggcnat aaaggggata 540
ttgggttcctt ggggccagtc anctt 565

```

<210> 177
 <211> 306
 <212> DNA
 <213> Mouse

<400> 177
 aaacgaatga ccatcattgg ggtgattctc agtttttaggg ccatggccca agaggggactt 60
 caggagggttt tttctgcccc ctgccctttt ctcattgggcc ccattgagtg cctgaaggag 120
 tttgtcaccc ctgacacaga cattaaggtc accctgagtg tctttgagct ggcatgtgct 180
 gcaggggtga gctgtgacat tgaccagcc ttggtagctg ccattgccaa tctgaaagct 240
 gataactcat cccctgaaga agagtataag gtggcatgcc tactcttgat cttttccttt 300
 ttttng 306

<210> 178
 <211> 551
 <212> DNA
 <213> Mouse

<400> 178
 aaacgaatga ccatcattgg ggtgattctc agtttttaggg ccatggccca agaggggactt 60
 caggagggttt tttctgcccc ctgccctttt ctcattgggcc ccattgagtg cctgaaggag 120
 tttgtcaccc ctgacacaga cattaaggtc accctgagtg tctttgagct ggcatgtgct 180
 gcaggggtga gctgtgacat tgaccagcc ttggtagctg ccattgccaa tctgaaagct 240
 gataatcatc cccctgaaga agagtataag gggcatgcta actcttgatc tttcttgctg 300
 tttccctccc atccttgcca ntgaccgctc ttcctttctt cagcattgag aaagatggct 360
 acaacaacaa catccactgt ttgaccaaag ccatcattca ggtgtctgct ggccctcttta 420
 actctggaac aaacaaagaa cattgaaacg canccctcaa gagtttcttg tggngggctc 480
 tgtaagcctc ttggaagctg gggcaagggg actgacaagc ttcnaaacn ggaaattcgn 540
 gaatccattt c 551

<210> 179
 <211> 580
 <212> DNA
 <213> Mouse

<400> 179
 aaacgaatga ccatcattgg ggtgattctc agtttttaggg ccatggccca agaggggactt 60
 caggagggttt tttctgcccc ctgccctttt ctcattgggcc ccattgagtg cctgaaggag 120
 tttgtcaccc ctgacacaga cattaaggtc accctgagtg tctttgagct ggcatgtgct 180
 gcaggggtga gctgtgacat tgaccagcc ttggtagctg ccattgccaa tctgaaagct 240
 gataactcat cccctgaaga agagtataag gtggcatgcc tactcttgat ctttcttgct 300
 gtttccctcc cactccttgc cactgaccog tcttccctct tcagcattga gaaagatggc 360
 tacaacaaca acatccactg tttgaccaa gccatcatc aggtgtctgc tgccctcttc 420
 actctgtaca acaagaacat tgaaacgcac ctcaaagagt ttctggtggt ggccctctgct 480

agcctcttgc agctgggcca ggagactgac aagctcaaaa ccagaaatcg tgaatccatt 540
tctctgctca tgcgcttggt ggtggaggag tcanccctcn 580

<210> 180

<211> 502

<212> DNA

<213> Mouse

<400> 180

tgctacatcg ccagtgaacg ggtacttttg aggaagtctg tatgctagac aaggaggaag 60
gagatggata aagcagatgt ttatcggggc attccttata ccagctatgg tgtgtggcac 120
tgcattcttc atcaacttta tagccattta ttaccatgcc tctagagcca ttcccttttg 180
aacaatggtg gccgtttggt gcatctgttt ctttgttatc cttcctctaa atctcgttgg 240
tacaatactg ggtcgaaatc tgtcgggtca gcccaacttc cttgtcgtg tcaatgccgt 300
gcctcgctcc atccccgaga aaaaatggtt tatggagcct gcagttattg tttgcctggg 360
aggaatttta ccttttggtat caatctttat tgaaatgtac ttcattctca cgtccttctg 420
ggcatataag atctactatg tctatggctt catgatgctg gtgctgggtca tcctgtgcat 480
tgtgactgtc tgtgtgacca tt 502

<210> 181

<211> 557

<212> DNA

<213> Mouse

<400> 181

tgctacatcg ccagtgaacg ggtacttttg aggaagtctg tatgctagac aaggaggaag 60
gagatggata aagcagatgt ttatcggggc attccttata ccagctatgg tgtgtggcac 120
tgcattcttc atcaacttta tagccattta ttaccatgcc tctagagcca ttcccttttg 180
aacaatggtg gccgtttggt gcatctgttt ctttgttatc cttcctctaa atctcgttgg 240
tacaatactg ggtcgaaatc tgtcgggtca gcccaacttc cttgtcgtg tcaatgccgt 300
gcctcgctcc atccccgaga aaaaatggtt tatggagcct gcagttattg tttgcctggg 360
aggaatttta ccttttggtat caatctttat tgaaatgtac ttcattctca cgtccttctg 420
ggcatataag atctactatg tctatggctt tcatgatgct ggtgctggtc atcctgtgca 480
ttgtgactgt ctgtgtganc attgtctgca catacttccg gctaaacgca gaggattaca 540
ggtggcagtg gacgagt 557

<210> 182

<211> 661

<212> DNA

<213> Mouse

<400> 182

tgctacatcg ccagtgaacg ggtacttttg aggaagtctg tatgctagac aaggaggaag 60
gagatggata aagcagatgt ttatcggggc attccttata ccagctatgg tgtgtggcac 120
tgcattcttc atcaacttta tagccattta ttaccatgcc tctagagcca ttcccttttg 180

```

aacaatggtg gccgtttggt gcatctgttt ctttggtatc cttcctctaa atctcgttgg 240
tacaatactg ggtcgaaatc tgcgggtca gcccaacttc ccttgtcgtg tcaatgccgt 300
gcctcgctcc atccccgaga aaaaatggtt tatggagcct gcagttattg ttgacctggg 360
aggaatttta ccttttggat caatctttat tgaaatgtac ttcattctca cgctcttctg 420
ggcatataag atctactatg tctatggctt catgatgctg gtgctgggtc tcctgtgcat 480
tgtgactgtc tgtgtgaacc attgtctgca catacttcct gctaaaacgc agaggattac 540
aggtaggcagt ggacgagttt cgtctgngg gggtagccgg ggtntaaggt taaanngacc 600
cccttttaac aanaaatttc ttcaaaaacc aagatgtntg gggtatttcc aaaaatcatt 660
t

```

661

<210> 183

<211> 522

<212> DNA

<213> Mouse

<400> 183

```

cctaagtcca ttggaaaaca aaatatttac attatgattc ataacagtag ggaaattaca 60
gttaagtagc aacaaaaata attttatatt tggggtcact acagcatggg gactgtattg 120
aaaggatagc agcatcagga aggttaaaaa ctgccggtct agaagaaagc attgggtctc 180
ttggaactag agttatagat gcttagaacc tccgtgttgc ttctgtaagt caacctcctt 240
agtcctatga aagtgtctata taatgatgtt tgtgcctcat tggctctgcc aaaatgatat 300
aaaagtatgt atggatgatt ttgttcctat acactagaac atgtgttgcc atatcttata 360
aactatgtct actgatata tacactggta gctatgtaca cacagaactc agttgtctgc 420
tcaggagggt gtagggatag ttgagagcca gtactcactc actatggacc ttacttaatc 480
ctctcctagt taatccttct ccaaactctc taacttgaca gg

```

522

<210> 184

<211> 512

<212> DNA

<213> Mouse

<400> 184

```

cctaagtcca ttggaaaaca aaatatttac attatgattc ataacagtag ggaaattaca 60
gttaagtagc aacaaaaata attttatatt tggggtcact acagcatggg gactgtattg 120
aaaggatagc agcatcagga aggttaaaaa ctgccggtct agaagaaagc attgggtctc 180
ttggaactag agttatagat gcttagaacc tccgtgttgc ttctgtaagt caacctcctt 240
agtcctatga aagtgtctata taatgatgtt tgtgcctcat tggctctgcc aaaatgatat 300
aaaagtatgt atggatgatt ttgttcctat acactagaac atgtgttgcc catatcttat 360
aaactatgtc tactgatata ttacactggg agctatgtac acacagaact cagttgtctg 420
ctccaggagg tggtaggggt agttgagagc cagtactcac tcaatagga ccttacttaa 480
tcctctccta gttaatcttc tccaaatctc tt

```

512

<210> 185

<211> 572

<212> DNA

<213> Mouse

<400> 185

```

tgaggtctgt gcccgaccca tctacccggg ccttgatgct cttggccttg ttaactctct 60
ttgccttgct gagccggctc actggctcca ggagctcagg gagccacctg gaagccaagg 120
tgagagggaa gagcttagag ggagggcagag gcgagcagcc aagatgcccc ggagcatgga 180
agaagagtga caagggcgtc cccaagagac accctcaccg taccaaagag ctgagctgct 240
tctgggtctc acggacctcc ttgcagcccc cttgcccttt ccttgccctg tgtccggaac 300
cttcacacct ttacccctgc gctanccctg gctgagagga gagaacctgt cctctgccgg 360
tgctcagtca agtgatggct cctgcccctt ctgtgtctcc agcctgcctc cccagggca 420
ggttggagnc ctgagccctg gcttctgtct aagccagcaa ccacttggcc ngcttgatct 480
tccgtggatg attaaacctg ctgctttcct taanacaaag gcctgcccc ggggtttaaag 540
ctcctgggtt tgaccattnc ccnnnccaa aa 572

```

<210> 186

<211> 585

<212> DNA

<213> Mouse

<400> 186

```

attcgggttg ccgccgtca cccacnncnc ctgtngnnc cgtgtgtccn actctccctg 60
ngtnctccgg gccaaaggng gccntgnttc ttcaggctgg ncccccgag ctengntggn 120
gttgcncttg ccccccgggc tcaacnaatt ggangcggtg gagggngnag nagtggtgct 180
ccccgccttg tacnctgttg cacgggaggn gtcgtggctc ccccccgag aggtgcccat 240
cctgatctgg ttcttggaac nngaagggn ggnaccnnac cnggtgttgt cttacnttna 300
tggagtcttg ncnntnaac ctggcacagc cctgggtccac tctatctctt cncggaatgt 360
gtccctgcgc ctgggggggac tccnggaggg ngactctggg acttaccgct gttctgtcaa 420
tgtgcngnat gatgaaggna aangtatagg ccnnagcatt aaaagcntag agtcaaagtg 480
ctgggtcctc aagntcccca ttctgtagtt naaagggtgt nccctaantt ggggancaat 540
tggancctga actganangt cccnaagggt gtaaacctta tngtt 585

```

<210> 187

<211> 564

<212> DNA

<213> Mouse

<400> 187

```

attcgggttg ccgccgtca cccacaacac ctgtagacac cgtgtgtcca actctccctg 60
agtactccgg gccaaaggag gccatgattc ttcaggctgg acccccgag accagcttgc 120
tgcgggtttt gttcctggga ctgagtaacc ttgctgcctt ctcccagct cagatggagt 180
tgcacgtgcc cccgggcctc aacaaatttg aagcggtaga gggagaagaa gtgggtgctc 240
ccgcctggta cacgatggca cgggaggagt cgtgggtccca ccccgaggag gtgcccattc 300
tgatctgggt cttggaacaa gaagggaagg aaccaaacca ggtgtgtgtc tacattaatg 360
gagtcagtac aaataaacct ggaacagccc tgggtccactc tatctcttca cggaatgtgt 420
ccctgcgcct gggggcactc caggagggag actctgggac ttaccgctgt tctgtcaatg 480
tgagaatga tgaagggcaa aagtttaggc cacagcattc aaagcattag agcttcnaaa 540

```


tgctngttcc ctccagctcc ttcc

564

<210> 188

<211> 571

<212> DNA

<213> Mouse

<400> 188

attcggttg cgcgcgtca cccacaacac ctgtagacac cgtgtgtcca actctccctg 60
 agtactccgg gccaggagg gccatgattc ttcaggctgg aacccccgag accagcttgc 120
 tgccgggttt gtccctggga ctgagtacc cttgctgcctt ctcccagct cagatggagt 180
 tgcacgtgcc cccgggcctc aacaaattgg aagcggtaga gggagaagaa gtggtgctcc 240
 ccgcctggta cacgatggca cgggaggagt cgtggtccca cccccgggag gtgcccattc 300
 tgatctggtt cttggaacaa gaagggaagg aaccaaacca ggtgttgtct tacattaatg 360
 gagtcagtac aaataaacct ggaacagccc tgggtccactc tatctcttca cggaatgtgt 420
 ccctgcgcct gggggcactc caggaggagg actctgggac ttaccgctgt tctgtcaatg 480
 tgcagaatga tgaaggcaaa agtatanggc acagcatcaa aagcatagag cncaaagtgc 540
 tgggttctcc agtcctccat ctgtaantta a 571

<210> 189

<211> 533

<212> DNA

<213> Mouse

<400> 189

attcggttg cgcgcgtca cccacaacac ctgtagacac cgtgtgtcca actctccctg 60
 agtactccgg gccaggagg gccatgattc ttcaggctgg aacccccgag ctcagatgga 120
 gttgcacgtg cccccgggcc tcaacaaatt ggaagcggta gagggagaag aagtgggtgt 180
 cccgcctgg tacacgatgg cacgggagga gtcgtggtcc ccccccgagg aggtgcccatt 240
 cctgatctgg ttcttggaa aagaaggga ngaaccaaac caggtgttgt cttacattaa 300
 tggagtcatg acaataaac ctggaacagc cctggtccac tctatctctt cacggaatgt 360
 gtccctgcgc ctgggggcac tccaggagg agactctggg acttaccgct gttctgtcaa 420
 tgtgcagaat gatgaangcc aaagtatagg gccacagcat caaaagcata gagctcaaag 480
 tgctgggtcc tccagctctt caatcctgta gtttaagggg gtancctatg tcg 533

<210> 190

<211> 510

<212> DNA

<213> Mouse

<400> 190

gccctcctga tcttcccaat gaatttgaa tatttaacag tctttggtt tccttgggtg 60
 cttttatgca gcaaggatgt gatatttctc caagatcact ttctgggcgc attgttggag 120
 gggtttggtg gttcttcacc ctgatcataa tctcttctca cactgcaaac cttgctgctt 180
 tcttgactgt ggagaggntg gtgccccca tagagagcgc tgaagattta gccaaagcaga 240

```

ctgaaattgc atacgggacc ctggactctg gttcaacaaa agaatttttc agagtaagta 300
ctttgttggt agttcagcct gcnggttttt atttccattt cacaaagaca aatttgcagc 360
acttttaagt gaggcttgta ggaaacttta tcaaaggaac aatgtcttaa atactgngct 420
gcttagttgt aaatcggatc ccttgccat tagactcacg ggagacataa caggtgagat 480
gttgagagca ctgaatttga actcctagaa 510

```

<210> 191
 <211> 549
 <212> DNA
 <213> Mouse

```

<400> 191
gccctcctga tcctcccaat gaatttggaa tattaacag tctttggttt tccttgggtg 60
cttttatgca gcaaggatgt gatatttctc caagatcact ttctgggcgc attgttggag 120
gggtttggtg gttcttcacc ctgatcataa tctcttccta cactgcaaac cttgctgctt 180
tcctgactgt ggagaggatg gtgcccccca tagagagcgc tgaagattta gccaagcaga 240
ctgaaattgc atacgggacc ctggactctg gttcaacaaa agaatttttc agagtaagta 300
ctttgttggt agttcagcct gctgggtttt atttccattt cacaaagaca aatttgcagc 360
acttttaagt gaggcttgta ggaaacttta tcaaagaaca atgtcttaa tactgtgctg 420
cttagttgta atcggatcca ttgtccatta gactcacggg gagacataac aggtgagatg 480
ttgagagcac tgaatttgaa ctcctagatt ttaatttcaa ccctgctata aagtgatatt 540
gtcctcctngg 549

```

<210> 192
 <211> 669
 <212> DNA
 <213> Mouse

```

<400> 192
tcgagaaccc tggcactaga gctgccctgg gtgaaagctg gggactctgg acactacact 60
tgccaagcag agaataggct gggctcccag caacataccc tggacctctc tgtgctgtac 120
ccccacagg acctgagagt gactgtttcc caagcaaaca ggacagtgtt ggaaatcctc 180
aggaatgcca tctccctccc agtccctggag ggccaaagcc tgtgcctagt ctgtgtcacc 240
tatagcaatc cccagccaa tgtgagttgg gcttgggtga cacagaccct gatcccaatc 300
cagtcttcan agcctggggt cctggagctg cctctgggtc agagagaaca tgaaggagaa 360
ttcacctgtg ctgcacagaa cccactgggt gccagcgca tctctctgag cctctctgtg 420
cactaccgcg ccagatgtc cagccctcc tgcctctggg aggccaaagg tctgcaactgc 480
aactgtcct ccagagcctg gcctgcccc tctctgcgtt ggcggctggg ggaggggctg 540
ctgaagggga acagcagcaa tgccttcttt cacagtcact ttcagctcac ttggacctgg 600
gtcaanagct cctgaagctc ctttcaggag ctgggggcca nccttggtc acntttgaag 660
tcctggaaa 669

```

<210> 193
 <211> 553
 <212> DNA

<213> Mouse

<400> 193

```

anatggtgga ggactantac aanggcacatca gacagatggt gcaggtcagc gaccaggaca 60
tgaatacgca cttggnagag atttcccggg ctcacacaga ctccctgaac acactcgtgg 120
ccctacacca gctctaccaa tacacacaga agtactatga tgagatcatc aatgctctgg 180
aggaggagccc tgcagcccaa aagatgcaac tggccttccg cctacagcag attgctgctg 240
cgcttgagaa taagggttaca gacctctgac cgtcaatgcc gcctcaggat gcagggtgtgt 300
ggtaccatgg ccttggggcag cccgttggcc tgagatggca ctggctgtag ccgggctctt 360
ctctctctcc agtagaggat gcacccaagg catctggagt ggggtgtggtg aaccacctc 420
ttgtagactg tagcgtcttt ctctgagca atactgccg ggcgcccag tcagcaccag 480
ctcctttcca atgggcaacca gcatcgggtg ttctctgtgt tctcncctga gcaattcgca 540
aatgtgncct tan 553

```

<210> 194

<211> 549

<212> DNA

<213> Mouse

<400> 194

```

anatggtgna ggnctantac aanggcacatca gananatngt gcaggtnagc gaccaggaca 60
tgaatacgca cttnnnagag atttcccggg ctcacacaga ctccctgaac acactcgtgg 120
ccctacacca gctctaccaa tacacacaga agtactatga tgagatcatc aatgctctgg 180
aggaggagccc tgcancctaa aagatgcaac tggccttccg cctacagcag attnctgctg 240
ngnttgana anaagggttac agacctctga ccgncaatg gccggctcag ganncccggg 300
tgnggtacca tnggcnttgg aancngttn gcctnagang gnncnngtg caaanggggc 360
tcttaaatec nanagnnnng ggggcaccca ggnancccn cctgggnagg gcnaanncn 420
nnttnaact tgnagggaaa nttncnggc ataaaaaccg ggtncceaan aaccccn 480
cccttgggnn gggtgaaaaa tngggnaaa atnnnncccc ccccgngtn acnggggaan 540
acncncttt 549

```

<210> 195

<211> 525

<212> DNA

<213> Mouse

<400> 195

```

aaagctttgt gtgtacaagg acttcaagaa gcacgggtgcc caaggaagat ttgttgctct 60
gtaccttttg gggatgttta tcccatatct ttacgggctc tacctcatct gggctgtgtt 120
tgagatgttc actcctatcc tgggaagaag cgggtcggag atccccccg acgttggtgt 180
ggcctccatc ctggctgtct gtgtgatgat cctctcttcc tattttatta ccttcactta 240
ccttgtgaac agcacaaaga aaaccattct gactctaata ctgggtgtgcg cggtcacctt 300
cctcctgtgc tgcagtggag cctttttccc atatagttct aatccccgaga gtccaaagcc 360
aaagagagtg tttcttcagc acgtgagtag aacttttcat aacttagaag gaagcgtagt 420
aaaaagagac tctggaatat ggntcaatgg gtttgattat actggaatgt ctcacgtaac 480
ancctcacat ttcctgagat caacgncaca atccgagctc actgg 525

```

<210> 196
 <211> 550
 <212> DNA
 <213> Mouse

<400> 196
 gaggaatttg aactgctgtg gcttccggag ctataaccca aatgacacct gtccagctag 60
 ctgtgctaaa agtaccacaga agtgctcctc gtgcgcccc ataatcggag agtatgctgg 120
 agagggtttg aggtttgttg gtggcattgg tctcttcttc agttttacag agatcctggg 180
 tgtttggtg acctacagat accggaacca gaaagacct cgcgccaacc cgagtgcctt 240
 cctttgacga gaagacaaag aagaccttct ctctgttgat cttgttttct ttctctaate 300
 tcaaattaaa ctaatttggt catatcgaca aggaagcagt atctgaaaac cacattatgt 360
 caacgatgga attaaaaatt ttactcttaa gtttctccag acattttttt tttctttcca 420
 ttgctaaaaa agcaatcgaa gttccccata ttccctggcc ctacgtgggc cctggaatct 480
 actgttggtg ggggtctggc ctgtccaccg ggggccttct tagcattttt acctgctgga 540
 aaatggggga 550

<210> 197
 <211> 576
 <212> DNA
 <213> Mouse

<400> 197
 gaggaatttg aactgctgtg gcttccggag ctataaccca aatgacacct gtccagctag 60
 ctgtgctaaa agtaccacaga agtgctcctc gtgcgcccc ataatcggag agtatgctgg 120
 agagggtttg aggtttgttg gtggcattgg tctcttcttc agttttacag agatcctggg 180
 tgtttggtg acctacagat accggaacca gaaagacct cgcgccaacc cgagtgcctt 240
 cctttgacga gaagacaaag aagaccttct ctctgttgat cttgttttct ttctctaate 300
 tcaaattaaa ctaatttggt catatcgaca aggaagcagt atctgaaaac cacattatgt 360
 caacgatgga attaaaaatt ttactcttaa gtttctccag acattttttt ttctttcca 420
 ttgctaaaaa agcantcgaa gttccccata ttccctggcc ctacgtgggc cctgtaatc 480
 tactgttggt ggggtctggc actgtgccac cngggccttt cttaggaatt ttttacctgg 540
 ctggnaaact gtgttatggg caccctggg gnaaaa 576

<210> 198
 <211> 590
 <212> DNA
 <213> Mouse

<400> 198
 gaggaatttg aactgctgtg gcttccggag ctataaccca aatgacacct gtccagctag 60
 ctgtgctaaa agtaccacaga agtgctcctc gtgcgcccc ataatcggag agtatgctgg 120
 agagggtttg aggtttgttg gtggcattgg tctcttcttc agttttacag agatcctggg 180
 tgtttggtg acctacngat acnggaacca gaaagacct cgcgccaacc cgagtgcctt 240

```

cctttgacga gaagacaaaag aagacctttc ctctgttgat cttgttttct ttctctaate 300
tcaaattaaa ctaatttggt catacgacaa aggaagcagt atctgaaaac cacattatgt 360
caacgatgga attaaaaaatt ttactcttaa gtttctccag acattttttt tttctttcna 420
ttgcnaaaaa agcaatcgaa gttccccata ttccctggcc ctnantggtn ccnggaaatc 480
tantgntgnt ggtgntcggc antgtcaanc gnggnccttt tagnantttt cctgctgtaa 540
actgtgaatg ggcccccggg gnagatgaat tggncngat cttcatctnn 590

```

<210> 199

<211> 598

<212> DNA

<213> Mouse

<400> 199

```

gaggaatttg aactgctgtg gcttccggag ctataaccca aatgacacct gtccagctag 60
ctgtgctaaa agtaccacaga agtgcctctc gtgcgcccc ataatcggag agtatgctgg 120
agagggtttg aggtttgttg gtggcattgg tctctctctc agttttacag agatcctggg 180
tggttggttg acctacagat accggaacca gaaagacct cgcgccaacc cgagtgtttt 240
cctttgacga gaagacaaaag aagacctttc ctctgttgat cttgttttct ttctctaate 300
tcaaattaaa ctaatttggt catacgacaa aggaagcagt atctgaaaac cacattatgt 360
caacgatgga attaaaaaatt ttactcttaa gtttctccag acattttttt tttctttcca 420
ttgctaaaaa aagcaatcgn ngttccccat attccctggc cctcagtggt ncctgtaate 480
tactgtgtgt ggtgtgtctg nactgtccaa acgtggggct ttcttaggca tttttaaccc 540
ngctggtaaa actgtgtaag ggcacccctg ggtaagatga atattttgan cccccana 598

```

<210> 200

<211> 546

<212> DNA

<213> Mouse

<400> 200

```

caacggagtt gtggaagaca gaacctcaag atgcaggaga ccaggaggag aacacttgca 60
tcctcaggga ggaagccagg atgccccagt caactggggt tgctttaggg atagggttgg 120
agtcagcaga gcctacagcc ctgctcccca gggcagagac cctcccagag ccgacagagc 180
ttcgtccaca aaagcggaaa aaggggccag ccccaaaaat gctggggaac gagctgtgca 240
gtgtctgttg ggacaaagcc tctggcttcc attacaacgt gctgagctgc gagggctgca 300
agggattctt ccgcccagct gtcacaaagg gagcacgcta tgtctgccac agcgggtggc 360
actgccccat ggacacctac atgcggcgga aatgccagga gtgtcgactt cgcaaatgcc 420
gccagnaggc atgagggang agtgtgtgct gtcagaagaa cagattccgc ttgaagaaac 480
tgaagcggca agaagaggaa caggctcaag ccatttcggt gtncccaagg gtgtcctcac 540
ctcctn 546

```

<210> 201

<211> 532

<212> DNA

<213> Mouse

<400> 201

```

caacggagtt gtggaagaca gaacctcaag atgcaggaga ccagggagggc aacacttgca 60
tcctcagggga ggaagccagg atgccccagt caactgggggt tgcttttaggg ataggggttg 120
agtcagcaga gcctacagcc ctgctcccca gggcagagac cctcccagag ccgacagagc 180
ttcgtccaca aaagcggaaa aagggccag ccccaaaaat gctggggaac gagctgtgca 240
gtgtctgtgg ggacaaagcc tctggcttcc attacaacgt gctgagctgc gagggctgca 300
agggattctt ccgccgcagt gtcacaaagg gagcacgcta tgtctgccac agcgggtggcc 360
actgccccat ggacacctac atgcggcgga aatgccagga gtgtcgactt cgcaaagtcc 420
gccaggaggc atgagggagg agtgtgtgct gtcagaagaa cagatccgct tgaagaaact 480
gaagcggcaa gaagaggaac aggtcaagc cacttcgggtg tncccaaggg tn 532

```

<210> 202

<211> 694

<212> DNA

<213> Mouse

<400> 202

```

caacggagtt gtggnngacn gnacctcaag ntgcngngn ccngggagggc aacacttgcn 60
tcctcngggg ggaagccngg atgccccagt caactgggggt tgcttttaggg ataggggttg 120
agtcagccga gcctacngcc ctgctcccca gggcagagac cctcccagag ccgacagagc 180
ttcgtccaca aaagcggaaa aagggccag ccccaaaaat gctggggaac gagctgtgcn 240
gtgtctgtgg ggacaaagcc tctggcttcc nttacnacgt gctgagctgc gagggctgcn 300
agggattctt ccgccgcagt gtcacnagg gagcncgcta tgtctgccac agcgggtggcc 360
nctgccccat ggacacctac ctgcggcgga aatgccaggn gtgtcgactt cgcaaagtcc 420
gccaggaggg cntgagggag gagtgtgtgc tgtcaagang aacagatccg cttnaangaa 480
actgaaagcg ggacangaaa aaggaaccng ggntcaaagc cacttcgggt tggtnccccc 540
aanggggtgt ccttcantct cccttcaaan ttccttgccc accaaggntt aaggccccc 600
naagccaagc cttggggcaa ttaattcnga agaaaacctn ggttgggctt gcccacaagg 660
aaaccaattn ttaanaaagg ggggtcncct tttt 694

```

<210> 203

<211> 658

<212> DNA

<213> Mouse

<400> 203

```

caacggagtt gtggangacn gaacctcaag atgcnggaga ccngggagggc aacacttgcn 60
tcctcagggga ggaagccngg atgccccagt caactgggggt tncttttaggg ataggggttg 120
agtcngcaga gcctacagcc ctgctcccca gggcagagac cctcccngag ccgacagagc 180
ttcgtccaca aaagcggaaa aagggccag ccccaaaaat gctggggaac gagctgtgca 240
gtgtctgtgg ggacaaagcc tctggcttcc attncnacgt gctgagctgc gagggctgcn 300
ngggattctt ccgccgcngt gtentcnagg gagcncgctn tgtctgccac ngcgggtggcc 360
actgccccnt ggncacctac atgcggcgga aatgccngga gtgtcgactt cgcaaagtcc 420
gccngnggg cntgagggag gagtgtgtgc tgtcagaaga acngatccgc ttgnaganac 480
tgaagcggca agaagnggaa cagggctcaa gccacttcgt gttcccana ggggtgntcct 540

```

caactcctta agttccttgc caaaagtcca ggcccaanag gaagntgggc cattnattcg 600
 aagaacnctt ggttggnctg ccccgangaa cnattgttaa cangggggct cccttttt 658

<210> 204
 <211> 578
 <212> DNA
 <213> Mouse

<400> 204
 caacggngtt gtggaagnca gnnccctcaag ntgcaggnga ccagggaggc aacacttgc 60
 tcctcagggg ggaagccngg ntgccccagt caactggggg tnccttaggg ataggggttg 120
 cgtcngcnga gcntacngcc ctgctcccca nggcngngnc cctcncagng ccgacagagc 180
 ttcgtccaca aaagcggnaa aagggccnag nccccaaant gctgggganc gagntgtgna 240
 gtgtctgtgg ggacnnagnc tctggcttcc attacnangt gctgagctgn ganggctgca 300
 agggattctt ccgccgnagt gtcacaaagg gacnacgcta tgtctgncac ngcgggtggc 360
 actgccccat gggnacctat tgcggcggaa tgnccangag gtgcattngc aaatgcgna 420
 gnggcntgaa ngaagagtgt ntgctgtnaa nnaaacagan ccgcttgang aaaatgcngn 480
 ggnaanagta gtacnggggt aagccncttt cggntncccn aggggtgtcct aannccctna 540
 gntcctgcaa nngntnnngc caaaagaant gggatttt 578

<210> 205
 <211> 538
 <212> DNA
 <213> Mouse

<400> 205
 caacggagtt gtggaagaca gaacctcaag atgcaggaga ccagggaggc aacacttgca 60
 tcctcagggg ggaagccagg atgccccagt caactggggg tgcttttaggg ataggggttg 120
 agtcagcaga gcctacagcc ctgctcccca gggcagagac cctcccagag ccgacagagc 180
 ttcgtccaca aaagcggaaa aagggcccag cccccaaaat gctgggggaa gagctgtgca 240
 gtgtctgtgg ggacaaagcc tctggcttcc attacaacgt gctgagctgc gagggctgca 300
 agggattctt ccgccgagc gtcacaaagg gacnacgcta tgtctgccac agcgggtggc 360
 actgccccat ggacacctac atgcggcggg aatgccanga gtgtcgactt cgcaaatacc 420
 gccaggaggc atgangnagg agtgtgtgct gtcagaagaa cagatccgct ttnaagaaac 480
 tgaagcggca anaanangaa cangctcaag ccatttggtg tncccaang gtgttctt 538

<210> 206
 <211> 532
 <212> DNA
 <213> Mouse

<400> 206
 caacggagtt gtggaagaca gaacctcaag atgcaggaga ccagggaggc aacacttgca 60
 tcctcagggg ggaagccagg atgccccagt caactggggg tgcttttaggg ataggggttg 120
 agtcancaga gcctacagcc ctgntcccca gggcagagac cctcccagag ccgacagagc 180

```

ttcgtccaca aaagcggaaa aagggcccag ccccaaaaat gctggggaac gagctgtgca 240
gtgtctgtgg ggacaaagcc tctggcttcc attacaacgt gctgagctgc gagggctgca 300
aagggattct tccgccgcag tgcatacaag gggatcacgc tatgtctncc acagcgggtgg 360
gcaactgcc catgggacac ctaaatgcc cggaaatgcc cangagtntc gacnttgna 420
aatgccgcca ggagggcatt anggacgatt tnttgcttcc anaaagaaca natcccgtt 480
taaagaaact taaagcgga anaagaagga aacagggctc taggcncnt ct 532

```

<210> 207

<211> 521

<212> DNA

<213> Mouse

<400> 207

```

gtgtgggggg ggttgtggcg tgggaggggc acataggacc agatcctcag acctttttct 60
ccaggagcct gtgggatggt ggctatctcg tggtagccg tcaacatcac tactgacttc 120
ttcaaccgaa ccaagtaagt gaggaaccca cccttgggga cagcaggtgg gtctcagccc 180
acactcctct gggctggcac tcaccttttc cactcctcca ggtatgaact gggccccgcc 240
ctctacttgg gctggagtgc ctccctgttc tccatcctgg gcggcatctg tgtcttctcc 300
acctgctgct gttcctccaa ggaggaacca gccaccaggt gaggggatga gcgggaggag 360
ggtatggagt gattaccaca tcacctatg acccctgtga cccaccttc ctcttcaccc 420
cacagggctg ggcttcccta caagccttct acggttgtga taccctgtgc cacctcggat 480
gagagtgaca tcagcttcgg taaatatggc aaaaacgcat n 521

```

<210> 208

<211> 546

<212> DNA

<213> Mouse

<400> 208

```

gtgtgggggg ggttgtggcg tgggaggggc acataggacc agatcctcag acctttttct 60
ccaggagcct gtgggatggt ggctatctcg tggtagccg tcaacatcac tactgacttc 120
ttcaaccac tgtatgctgg aaccaagtaa gtgaggaacc cacccttggg gacagcaggt 180
gggtctcagc ccacactcct ctgggctggc actcaccttt tccactctc caggtatgaa 240
ctgggccccg ccctctactt gggctggagt gcctccctgc tctccatcct gggcggcac 300
tgtgtcttct ccacctgctg ctgttcctcc aaggaggaac cagccaccag gtgaggggat 360
gagcgggagg agggatgga gtgattacca cagcatccta tgaccctgt gacccacct 420
tcctcttcat cccacagggc tgggcttnc tacaagcctt ctacggttgt gataccccgt 480
gcaactcgga tgagagtgc atcaagcttc ggtaaatatg gcaaaaaacg catacgtngt 540
aggaag 546

```

<210> 209

<211> 571

<212> DNA

<213> Mouse

<400> 209

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gtgtgggggg ggttgtggcg tgggaggggc acataggacc agatcctcag acctttttct 60
ccaggagcct gtgggatggt ggctatctcg tggtagcgcg tcaacatcac tactgacttc 120
ttcaaccacac tgtatgctgg aaccaagtaa gtgaggaacc cacccttggg gacagcaggt 180
gggtctcagc ccacactcct ctgggctggc actcaccttt tccactcctc caggatgaa 240
ctgggccccg ccctctactt gggctggagt gcctccctgc tctccatcct gggcggcatc 300
tgtgtcttct ccacctgtcg ctgttcctcc aaggaggaac cagccaccag gtgaggggat 360
gagcgggagg aggggatgga gtgattacca cagcatccta tgaccctgt gacccacct 420
tctcttcat ccacagggc tgggcttccc tacaagcctt ctacggtgt gatacccg 480
gccacctcgg atgagagtga catcagcttc ggtaaatatg gcaaaaacgc atacgtgtag 540
gaagctctgg cctgctggac accatttctt g 571

```

<210> 210

<211> 568

<212> DNA

<213> Mouse

<400> 210

```

ggtgtggggg gggttgtggc gtgggagggg cacataggac cagatcctca gaccttttct 60
tccaggagcc tgtgggatgg tggctanctc gtggtacgcc gtcaacatca ctantgactt 120
cttcaaccac ctgtatgctg gaaccaanta agtgangaac ccacccttng ggacagcagg 180
tgggtctcag ccacactcc tctgggctgg cactcacctt tccactcct ccaggatga 240
actgggcccc gccctctact tgggctggag tgcctccctg ctctccatcc tnggcggcat 300
ctgtgtcttc tccacctgct gnnntcctc caaggaggna ccagcnanca tgtgagggga 360
tgagcggnag gaggnatgn agtgatnacc acagcancn atgaccntg tnaacccag 420
cttgcncntc atccnacagg gntgggcntc cctacaagcc tngctacggt tgtgataccc 480
cntnccactt tgnatagagt tantnagntt cggnaaaat ggnaaaangc atacttgtag 540
gaagcnntgg ctgctggaaa cattctgt 568

```

<210> 211

<211> 570

<212> DNA

<213> Mouse

<400> 211

```

tgactgagcg gctgcggctg gagcgganag ttcggctagc tgttgatgg cgcgggcg 60
actggcgggc cagtggccct gggcctgggt ctgcggctcc tctttggtct cagaacaggc 120
ctagaggccg ctccggctcc ggccataacc cgggtccaag tctccggctc tagagctgac 180
tctgcccga cagacacctt ccagtgtctt accagtggct attgtgtgcc cctttcctgg 240
cgctgtgatg gggaccagga ctgctctgat ggcagtgcg aggaagactg taggattgag 300
tcatgtgctc agaatgggca gtgccaacca cagtctgcc ttccttgctc ctgtgacaac 360
atcagtgggt gctctgatgt ctctgacaag aacctcaact gcagccgcc accctgtcag 420
gagagtgagc tgcattgcat actggatgat gtctgtattc caaacacgt ggcgctgtga 480
tggccaaccc agactgtctt tgactccagt gatgagctca gctgtgacac tgacacagaa 540
attgataaga tattccaggg gggagaatnc 570

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<210> 212
 <211> 400
 <212> DNA
 <213> Mouse

<400> 212
 ctgactgagc ggctgcggct ggagcggagc agttcggcta gctgttggat ggcgcggggc 60
 ggagctgggc gggcagtggc cctgggcctg gtgctgcggc tctcttttg tctcagaaca 120
 ggcctagagg ccgctccggc tccggcccat acccgggtcc aagtctccgg ctctagagct 180
 gactcctgcc cgacagacac cttccagtgt cttaccagtg gctattgtgt gcccctttcc 240
 tggcgctgtg atggggacca ggactgctct gatggcagtg acgangaaga ctgtangatt 300
 gagtcatgtg ctcagaatgg gcagtgccaa ccacantctg cccttccttg ctctgtgac 360
 aacatcagtg gttgctctga tgtctctgac aaaaaactca 400

<210> 213
 <211> 531
 <212> DNA
 <213> Mouse

<400> 213
 gggaagttga gagtgtatac tgctgggagt ggggcagtgg acaaaacagc ctgttaatag 60
 ggtcttgcaa ggggctctgt atgtaccagc gggactggct caatcctcac attctagcca 120
 tagacaaaca ccaggccaga ccctccatt ctgggttcagc ctgggcagct tgggctgagc 180
 caccaggacc aatggattta agctgacatt tcagtccaag acgacgactt ctaagtgagt 240
 ttaagaccag agaggaaaga ggggcctctg tgggtgctgg gtactccaga ggtgcccttg 300
 gtgggaggac cagtggctct agcaggaagg ggggcccagc aaggtcattc ttggaccctg 360
 ggtctagtcc agtagctaga aaaanggacc aagtggccat aaagtccag ccaatgatgg 420
 ggctttttcc agtgggcccc tgtagacctc aagccccctg gntccacct taccaggngc 480
 canttcttct cangaaggcc actngccan ggccccaagn cggccccctt t 531

<210> 214
 <211> 499
 <212> DNA
 <213> Mouse

<400> 214
 tttttttaga ctttttgtgc ttgtgtcttc tgtgactgtc cccttcttca ctttcatggc 60
 gacgtctact attactgcga gaggacttgt gtcttggttc ctctctctct ctgtgacgtc 120
 gttctctgtg ccgctcttct ttctcccgac tagctctatg gcgctcatag cctctctctg 180
 catactccct gtatctgtat cgctcttctg cactgttgaa aacacttggg gtggggctgt 240
 ggtcgcgctc tcgctcccg ccccggtgct gctcccttcc tctgtcccg tcccgctctc 300
 gctctctgtc tcggtctctc tcccggtctc ggtctcggct tttttctctc cttgcataat 360
 agtcccactg cttgggtggtg tccacaaggc tcggccatga nggagcagaa ctggtaaggc 420
 ggggaaangc gaattgcata nggaaacgct cgtgaaaacg gctgtaaacc cggagaatgg 480
 cactttctat gttggtana 499

<210> 215
 <211> 568
 <212> DNA
 <213> Mouse

<400> 215
 aataatttga acaggaaaat atttccatgt gatccctccat ggtggtgttg gcaagaatgg 60
 gtctactatt gcaggcacca gtgtcttgtc acctggactc cacataggat taattattat 120
 attggcaata atgatctata agaagtctgc aacaaatatg tttgaaaaac atccttgcct 180
 ttatacttta atgtttggat gtgtcttgc taaagttgca caaaaattgg tgatagctca 240
 catgacgaaa agtgaactat atcttcaaga cactgtcttt attgggccag gtcttttatt 300
 tttagaccaa tactttaata attttataga tgaatatgtt gttctgtgga tagcaatggt 360
 catttcttca tttgatatga tgatatactt tacttctttg tgcctgcaa tttcaagaca 420
 ccttcactca aacatcttca agacttcatg tcaacaagca ccggaacagg taatcaaagn 480
 ctatgaaggt ccgtgaagtc aaacttcatc cnctgtggtc ttgggacgaa acaggctctg 540
 ctgaaccatc ctggnaaaag gcaaacat 568

<210> 216
 <211> 558
 <212> DNA
 <213> Mouse

<400> 216
 ggtgcgcgga gtggacgttc gtcccttgcc tgcttcacct gctcgccct atccatcacc 60
 tggcaccact accacttcca gcccggccg gccccctggc ctgcagcggc ocaagtcgga 120
 cttgagtgag cgcttttcca gggcagcagc cgatcttgag cgctttttta acttctgttg 180
 cctggaccca gaggaagcgc gaggattggg ggtggccac ttagcaaggg ccagctcgga 240
 catcgtgtct ctgacccggc caagtgtctg accttgcagc tctgaagggg gctgctcacg 300
 ccgcagctct gctacagtgg aagagcggtc cctggatcgt gtcccctatg ggggtgtctgt 360
 gatcgagcga aacgctcgtg tgatcaagtg gctatatggg ttgcggcagg ctctgtgacc 420
 tcccanccac tgaggggttag gcctcctgga actggggttt cccgggaaga catcgtgaag 480
 agacagttgg cactttgtcc tttcctgtat ccattgggct gctttcctgc agaaccaga 540
 gactcttggg tgaattta 558

<210> 217
 <211> 548
 <212> DNA
 <213> Mouse

<400> 217
 gggaaatgaa cgcaaaaggt gccgctggaa gtgtccgacc tagagaaata tgtagaccgg 60
 agccctgtta ccttcttcca gcattggactt cctggttctc ttcttgttct acttggcctt 120
 cttattgatt tgtgttgtcc tgatctgcat cttcacaaaa agccagcgtt tgaaggccgt 180
 ggtccttggg ggagcacagg tgtgtccag ggtaatcccg cagtgcctcc agagggccgt 240

```

gcagacgctt ctcatcagc tcttcacac acgccacccc accttcacg tcttgacct 300
gctcttgcaa gggctagtgt atgcagaata cacctgcgag gtcttcggct attgccggga 360
gctggagttc tctctgcctt accttctcct gccctatgtg ctgctaagcg tgaacctggt 420
gttcttcacc ctgacttggt ccgccaatcc tggtagcatc actaaagcaa acgaatcatt 480
tcttctgcaa gtctataaat tcgatgatgt gatgtttcca aagaactcga ggtgccccca 540
cttgcgat 548

```

<210> 218
 <211> 569
 <212> DNA
 <213> Mouse

```

<400> 218
gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
atggcgcgcg gctgcctcca gggcgtcaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggctgccac acagggaac 180
tttgcacct tatcatctc atttccatcc ttgtcggtg ccaacctgct catcgtcacc 240
gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgctactgc tcactttctt tgtgctgctg ctgctagtgt tctgctgga agccaccatt 360
gctgtgctct tctttgccta cagtgaag attgacagt atgccaaca agacctgaag 420
aagggtgc tctgtatgg acacagggc acgtgggnnt caccaatgcc tgggagcatc 480
atccagantg attccgatg tgtgganttt cccaattaca tggatggtt gaggtattac 540
aatgcatcg tgtgcctgga anctgctgt 569

```

<210> 219
 <211> 561
 <212> DNA
 <213> Mouse

```

<400> 219
gatcaggctc aagatctgca ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
atggcgcgcg gctgcctcca gggcgtcaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggctgccac acagggaac 180
tttgcacct tatcatctc atttccatcc ttgtcggtg ccaacctgct catcgtcacc 240
gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgctactgc tcactttctt tgtgctgctg ctgctagtgt tctgctgga agccaccatt 360
gctgtgctct tctttgccta cagtgaag attgacagt atgccaaca agacctgaag 420
aagggtgc atctgtatgg cacacagggc aacgtgggnc tcaccaatgc ctggagcatc 480
atccagactg atttccgatg ctgtggagtt tccaattaca ctgattggtt tgaggtatac 540
aatgcactcg tgtgctgact c 561

```

<210> 220
 <211> 545
 <212> DNA
 <213> Mouse

<400> 220

```

gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
atggcgcgcg gctgcctcca gggcgtaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggctgccac acagggaaac 180
tttgcacact tatcatcttc atttccatcc ttgtcggtg ccaacctgct catcgtcacc 240
gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgcctactgc tcactttctt tgtgctgctg ctgctagtgt tcctgctgga agccaccatt 360
gctgtgctct tctttgccta cagtgacaag attgacagtt atgccaaca agacctgaag 420
aagggcctgc atctgtatgg cacacagggc aacgtgggnc ctcaccaatg ctggagcatc 480
atccagactg atttccgatg ctgtggagtt tccaattaca ctgattnggt tgagggatac 540
aatgc 545

```

<210> 221

<211> 550

<212> DNA

<213> Mouse

<400> 221

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gtncaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
atggcgcgcg gctgcctcca gggcgtaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggaaactttg ccaccttacc 180
atcctcattt ccaccccttg cggctgccaa cctgctcatc gtcaccggga ccttcgtcat 240
ggccatcggc ttctggtggct gcattggggc cctcaaggag aacaagtgcc tactgctcac 300
tttctttgtg ctgctgctgc tagtgttcct gctggaagcc accattgctg tgctcttctt 360
tgcctacagt gacaagattg acagtatatg ccaacaagac ctgaagaagg gcctgcatct 420
gtatggcaca cagggaacg tgggcctcac caatgcctgg agcatcatcc agactgattt 480
ccgatgctgt ggagtttcca attacactga ttggtttgag gtatacaatg ccactcgtgt 540
gcctgactcc 550

```

<210> 222

<211> 545

<212> DNA

<213> Mouse

<400> 222

```

gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
atggcgcgcg gctgcctcca gggcgtaag tacctcatgt tcgccttcaa cctgctcttc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tgaaactttg ccaccttacc 180
atcctcattt ccaccccttg cggctgccaa cctgctcatc gtcaccggga ccttcgtcat 240
ggccatcggc ttctggtggct gcattggggc cctcaaggag aacaagtgcc tactgctcac 300
tttctttgtg ctgctgctgc tagtgttcct gctggaagcc accattgctg tgctcttctt 360
tgcctacagt gacaagattg acagtatatg ccaacaagac ctgaagaagg gcctgcatct 420
gtatggcaca cagggaacg tgggntcacc aatgcctgga gcatcatcca gactgatttc 480
cgatgctgtg gagtttccaa ttacactgat tgggttgagg tatacaatgc cactcgtgtg 540
cctga 545

```

<210> 223
 <211> 585
 <212> DNA
 <213> Mouse

<400> 223
 gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
 atggcgcgcg gctgcctcca gggcgtaag tacctcatgt tcgccttcaa cctgctcttc 120
 tggctgggtg gctgtggtgt cctgggtgtt ggcactctgt tggctgccac acagggaaac 180
 tttgccacct tatcatcctc atttccatcc ttgtcggctg ccaacctgct catcgtcacc 240
 gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
 tgcctactgc tcactttctt tgtgctgctg ctgctagtgt tcctgctgga aagccaccat 360
 tgtgtgtctc ttctttgcct acagtgacaa gattgncagt tatgccaac aagacctgaa 420
 gaagggctgc aatctgtatg gcacacaggg caaacgtggg cctcaacaaa tgctggangc 480
 atcatccaga ctgatttccg atgnnggtgg agtttccaat tacnactgat tgggtttagg 540
 nataacaatn tncaantcgt gtgnctgant tcctggtgtc tgggn 585

<210> 224
 <211> 575
 <212> DNA
 <213> Mouse

<400> 224
 gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
 atggcgcgcg gctgcctcca gggcgtaag tacctcatgt tcgccttcaa cctgctcttc 120
 tggctgggtg gctgtggtgt cctgggtgtt ggcactctgt tggctgccac acagggaaac 180
 tttgccacct tatcatcctc atttccatcc ttgtcggctg ccaacctgct catcgtcacc 240
 gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
 tgcctactgc tcactttctt tgtgctgctg ctgctagtgt tcctgctgga agccaccatt 360
 gctgtgtctt ctttgcctac agtgacaaga ttgacagtta tgccaacaa gaacctgnag 420
 aaggggctgc aatctgtatg gccacaggg gaacgtgggg cctcaccaaa tgctnaggag 480
 gatcaatcnn gaactgattt tccgatgctg tggagtctcc aaataacaac tgnnttggtt 540
 tngnggtata aaattgccan ctcnnggtnc ctgac 575

<210> 225
 <211> 522
 <212> DNA
 <213> Mouse

<400> 225
 gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgctgcagc 60
 atggcgcgcg gctgcctcca gggcgtaag tacctcatgt tcgccttcaa cctgctcttc 120
 tggctgggtg gctgtggtgt cctgggtgtt ggcactctgt tggctgccac acagggaaac 180
 tttgccacct tatcatcctc atttccatcc ttgtcggctg ccaacctgct catcgtcacc 240

```

gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgcctactgc tcactttctt tgtgctgctg ctgctagtgt tcctgctgga agccaccatt 360
gctgtgctct tctttgccta cagtgcacaag attgacagtt atgcccaaca agacctnnag 420
aaagggctgc atctgtatgg cacacagggg aaacgtgggn ctcancaatg ctgggagcatc 480
atccagactg nnttncgatg ccgtnngttc caattaancc tg 522

```

<210> 226

<211> 523

<212> DNA

<213> Mouse

<400> 226

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gatcaggctc aagatctgga ctgaagactg ctggtggcca gagagctgaa gcgcngcagc 60
atggcgcgcg gctgcctcca gggcgtaag tacctcatgt tcgccttcaa cctgctctnc 120
tggctgggtg gctgtggtgt cctgggtgtt ggcatctggt tggctgccac acagggaaac 180
tttgccacct tatcatcctc atttccatcc ttgtcggcng cnaacctgct catcgtcacc 240
gggaccttcg tcatggccat cggcttcgtg ggctgcattg gggccctcaa ggagaacaag 300
tgcctacngc tcactttctt tgtgcnngcng ctgcnagtgt tcctgcngga anccaccatt 360
gctgtgcnc tcttnccta cagtggacaa gatgacagtt natgcccaac aaganctgaa 420
gaagggcctg caanctgtta tggnacacag ggcaacgtgg ggcctcacca angcctggaa 480
gccancaanc cagactggaa ttttccggaa agctgggggg aat 523

```

<210> 227

<211> 349

<212> DNA

<213> Mouse

<400> 227

```

gntcgtangc ctgcagtacc ggtccggaat tccgggtcga cccacgcgtc cgctgctggt 60
ggccagagag ctgaagcgct gcagcatggc gcgcggctgc ctccagggcg tcaagtacct 120
catgttcgcc ttcaacctgc tcttctggct ggggtggtgt ggtgtcctgg gtgttgccat 180
ctggttggtc gccacacagg gaaactttgc caccttatca tcctcatttc catccttgtc 240
ggctgccaac ctgctcatcg tcaccgggac ttcgtcatgg ccatggcttc gtgggctgca 300
tggggcctca aggagaacaa gtgctactgc tcatttcttt gtgctgtgn 349

```

<210> 228

<211> 529

<212> DNA

<213> Mouse

<400> 228

```

ccaagatgga gggcggcctg tcggcgccgc tgtccgtccg gttgttgctg ttcatanccg 60
tgccagccgc gggatggctg accaccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcaatgta actacctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaaata 240

```

```

gtggtgtaac ccgaataagc tgtcagactt tgatagtga gagtgaaaat ctggaaaaat 300
tggaggagaa acactatddd ggaattgtca ctgtgaggat cttagttctc gagaggcctg 360
tgacgtacag tgccagctcc cagctgattg tcatccaagg agaggntgtg gagattgacg 420
ggagacaagc tcaacaaaag aatgttactg aaattgacat tttagttaag aaccagagag 480
tactcagata ttcaagctat ttccttcctt tggaagaaag catgctttt 529

```

<210> 229

<211> 552

<212> DNA

<213> Mouse

```

<400> 229
ccaagatgga gggcggcctg tcggcgccgc tgtccgtccg gttgttgctg ttcatagcgc 60
tgccagccgc gggatggctg accaccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcaatgta actaccctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaata 240
gtggtgtaac ccgaataagc tgtcagactt tgatagtga gagtgaaaat ctggaaaaat 300
tggaggagaa acactatddd ggaattgtca ctgtgaggat cttagttctc gagaggcctg 360
tgacgtacag tgccagctcc cagctgattg tcatccaagg agaggntgtg gagattgacg 420
ggagacaagc tcaacaaaag aatgttactg aaattgacat tttagttaag aaccngagag 480
tactcagata ttccagctat ttccttcctt tggagaaag catgcttatt ccattcctca 540
gacagtgaca tt 552

```

<210> 230

<211> 553

<212> DNA

<213> Mouse

```

<400> 230
ccaagatgga gggcggcctg tcggcgccgc tgtccgtccg gttgttgctg ttcatanccg 60
tgccagccgc gggatggctg accaccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcantgta actaccctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaata 240
gtggtgtaac ccgaataagc tgtcagactt tgatagtga gagtgaaaat ctggaaaaat 300
tggaggagaa acactatddd ggaattgtca ctgtgaggat cttagttctc gagaggcctg 360
tgacgtacag tgccagctcc cagctgattg tcatccaagg agaggntgtg gagattgacg 420
ggagacaagc tcaacaaaaa gnnatgttact tgaaattgnc attttagtta aagaaccaga 480
gagtactcag atattccagg ctatttcctt cccttttgga aagaaagcat gcnttattct 540
atttctcnag nnc 553

```

<210> 231

<211> 539

<212> DNA

<213> Mouse

<400> 231

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ccaagatgga nggcggcctg tcggcgccgc tgtccgtccg gttgttgctg ttcatanccg 60
tgccagccgc gggatggctg ancaccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcaatgta actaccctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaata 240
gtggtgtaac ccgaataagc tgtcagactt tgatagtga gagtgaataat ctggaaaaat 300
tgaggagaa acactatattt ggaattgtca ctgtaggat cttagtcttc gagaggcctg 360
tgacgtacag tgccagctcc cagctgattg tcatccaagg agaggttggt gagattgacg 420
ggagacaagc tcaacaaaag natgttactg aaattgacat tttagttaag aaccagagag 480
tactcagatn ttcaagctat ttccttcctt tggaagnaag catgctttat tctatttcc 539

```

<210> 232

<211> 541

<212> DNA

<213> Mouse

<400> 232

```

ccaagatgga gggcgccctg tcggcgccgc tgtccgtccg gttgttgctg ttcatanccg 60
tgccagccgc gggatggctg accaccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcaatgta actaccctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaata 240
gtggtgtaac ccgaataagc tgtcagactt tgatagtga gagtgaataat ctggaaaaat 300
tgaggagaa acactatattt ggaattgtca ctgtaggat cttagtcttc gagaggcctg 360
tgacgtacag tgccagctcc cagctgattg tcatccaagg agaggttggt gagattgacg 420
ggagacaagc tcaacaaaag aatgttactg aaattgncat tttagttaag aaccagagag 480
tactcagatn ttcaagctat ttccttcctt tggaagaaag catgctttat tctatttctc 540
a                                                                 541

```

<210> 233

<211> 546

<212> DNA

<213> Mouse

<400> 233

```

ccaagatgga gggcgccctg tcggcgccgc tgtccgtccg gttgttgctg ttcatanccg 60
tgccagccgc gggatggctg accnccaacg cgcccaggcc gccgtccaca gccccgcaga 120
atggcatcca aatcaatgta actaccctga gcaagagtgg ggaagagtct gaagaacagg 180
ttgttcttaa cataacctat gagcgtggac aggtatatgt aaatgactta cctgtaaata 240
gtggtgtaac ccgaataagc tgtcagactt tgatagtga gagtgaataat ctggaaaaat 300
tgaggagaa acactatattt ggaattgtca ctgtaggat cttagtcttc gagaggcctg 360
tgacgtacag tgccagctcc cagctgnttg tcatccaagg agaggttggt gagattgacg 420
ggagacaagc tcaacaaaag aatgttactg aaattgncat tttagttaag aaccagaga 480
gtactcagat attcnagcta tttcctnctt tggaagaaaa gcatgcttta ttccattttc 540
ncaagg                                                                 546

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<210> 234
 <211> 584
 <212> DNA
 <213> Mouse

<400> 234
 gaccagagga ccggtgcaga atctggccct gcttccccag agaggcttat ggttgnggcc 60
 cctacnagga tgctacaggc tcagntagag tggataaggg actgccccaa ggcataatgct 120
 gcccttngga ntctctccct ccaanagtga ctgacaanat gncctctnct ggnacctcct 180
 antctccac tatggccatg cnagtggggn atcnagggga antanccatg cnatngatc 240
 acggcccnaa aaacgcttct tancctcnca ncactgncnc attgattcta aagaaggacg 300
 ccaagccaat gtctcnaagc aatctttaag ccctggggaa gcttgcnctc tcaaangatc 360
 tcaggtggnc ctaaaggag ttttngaact ccttaaaactg aggtttgcaa agaaacnttc 420
 aaancccggt ctccaccnat cntttttaaa natttttnga gggnnngccc nnntaagtcc 480
 caagntnga annntgangg ngcccnatn nnggagttgn cccnccgntc agnggnntnn 540
 naaaangnag ctttttnnng gggtnccnc cactttggga ngtg 584

<210> 235
 <211> 496
 <212> DNA
 <213> Mouse

<400> 235
 ctccggtagt ttgttcgccc tggcgctga ctttccaatg ctgagaccag aagtcctcag 60
 gtttgctatc ctacgtccgg ggggactttg agacgacgag tagtttcaag ggtgacctgg 120
 gctgaggcca ggaatgactc tactccccctg tgagggctga actgaaaaag gatcaaaggc 180
 gtctaaaacg tctttggagc cccctctgaa tacatctgat ggtgtatacg cagctaacag 240
 acattgggag caacagaact aatcgactgt gtgatcggtt atgccattaa attctttcta 300
 gaagctgaag catcatcctt tggtaaaaaa acggtgtgca tagaaaaaga ggatggcctt 360
 tcaattcaat ttcagcatag aagaagatct ggaaaaataa ttaacatccc tcgatgatgg 420
 aacttgtgtc ttagaaagtc agaaaggaaa gcaggacaaa aggcaatcta cagaacgtcc 480
 ggggcttgcc tcggga 496

<210> 236
 <211> 503
 <212> DNA
 <213> Mouse

<400> 236
 ggggaacaag agctggatgg agactgggtg tgtggctgga ttctgtttga cccctgacc 60
 tagttgactg aaggtgtgtg cacatgtgtg tgcattggta tggcatctaa cctcatggtg 120
 agctggagcc ccagtgggag gtatagtatg attcatagag ctctgcagcc atctccacga 180
 tcgatctaatt tttaattcat ctttatcctc gagagaaacc tcacattcac tgttaggatt 240
 ccagcctggg ctctggcagc cccaacaacc aatgttctac cagttgtcct agaggccaat 300
 taaacacca agtcatagcg aaaggcatcc acccaagtcc acctttgggc ctgacatgag 360
 gtttaggttt aaatagaggt ccagaagtgt gcatagctga gcagtcctgg gccagagtg 420

gctgccatat gtcggtatgg actctggcca tgtgtttatc gttgggctcc agggctcctgc 480
tagttgggtct gacaagttgt tag 503

<210> 237

<211> 541

<212> DNA

<213> Mouse

<400> 237

gaccagagga ccggtgcaga atctggccct gcttccccag agaggcttat gggtgaggcc 60
cctaccagga tgctacaggc tcagatagag tggataaggg actgccc aaa ggcatatgct 120
gccctttgga ttctctccct ccaccagtga ctgacaatat ggccccttct ggcacctcct 180
attctccac tatggccatg caagtggggc atcaaggac ctagccatgc catgtgatca 240
cggcccaaaa aaccttctta cctcacacc actgtcccat tgcttctaag aaggacgcca 300
agccactgtc tcaaagcact ctttaagccc tggggaagct tgctccttca aaggatctca 360
ggtggacata agtgagtttg gaattcctta aatgagggtt gaaagaacct tcacaccgt 420
tctccactat ccttctcaac atttctgagg tctgaccact aagtcacaag acttgaacta 480
tgtctgtgtc tcttttgact tcatcctggt cgggattcga ataggcagtt attgagggtc 540
c 541

<210> 238

<211> 560

<212> DNA

<213> Mouse

<400> 238

gaccagagga ccggtgcaga atctggccct gnttccccag agaggcttat gggtgnggcc 60
cctaccagga tgctacaggc tcagatagag tggataaggg actgccc aaa ggcatatgct 120
gccctttgga ttctctccct ccaccantga ctgacaatat ggccccttct ggcacctcct 180
attctccac tatggccatg caantggggc atcaaggac ctagccatgc catgtgatca 240
cggcccaaaa aaccttctta cctcacacc actgtcccat tgcttctaag aaggacgcca 300
agccactgtc tcaaagcact ctttaagccc tggggaagct tgctccttca aaggatctca 360
ggtggacata antgagtttg gaattcctta aatgagggtt gaaagaacct tcacaccgt 420
tctccactat ccttctcaac atttctgagg tctgaccact aangtcacaa gacttgaact 480
atgtctntgc ttctttttna cttcatcctn gtcnggnatt cgaataggnc gttattgang 540
gtcccaccag ttgacatgtg 560

<210> 239

<211> 597

<212> DNA

<213> Mouse

<400> 239

tggagaaagg cttcttgaag gaaaaggagc aggatgctgt atcctttcaa gccagatacc 60
gtgagcttca ggaaaaacat aaacaagaat tggaagacat gaggaaggct gggcactagt 120

```

ggatgngtac aaggcacttc tgcagtcttc agttaagcag cagctagatg ccatcgagaa 180
gcaatatgtg tctgcaatcg agaagcaagc tcaccggtgt gaggagctcc tgcattgtca 240
gcatcagagg cttctagacg tgctggacac tgagaaggaa ctgctaagag agaaaatcca 300
ggaagctttg actcagcagt cacaggagca gaaggaatca ctggaaaagt gcctccagga 360
ngaaatgcag aggaacaaaa agacactgga gtctgctgtg aagcttgaga aagaagcaat 420
ggaaagatgt catcactaaa agccgttgnn nagaaggaaa ngggaaaant cttggggngg 480
aangnttcat tgcccgaag aaaaaggggg gaacttggtg ggaaaaancc aggaaccatt 540
ggccaaagga ggattccagn ggagaaaggg gtnggccnaa aangggccna ttcccn 597

```

<210> 240

<211> 568

<212> DNA

<213> Mouse

<400> 240

```

gaagcagcgg ggaaggcaag gaagaagatg gagtttagagt tcctctatga cctgttgca 60
ctcccaaagg aggtagctca gccacggag gaagagcttc cacgaggagg aaagaagaaa 120
tatctgtcac ccaattccaa gaggaacccc aagtttgaag aactgcagaa ggtgctgatg 180
gaatggatca acaccacact cctcccggag cacatcgttg tccgcagcct ggaggaagac 240
atgtttgatg gacttattct gcaccacctg ttccagaagt tggcatcgct caagctggaa 300
gtggaggaaa tctctctgac ctcgccagc cagaggcaca agctgggggt catcctggag 360
gccgtcaacc agaacctaca ggtggaagag aagcaggcca agtggagcgt ggagaccatc 420
ttcaacaagg acctgtctggc caccttgcac ctccctgggt gccctgggcc aaangcttcc 480
agccggacct gccctcccca gacaacgtcc aggtggaagt catccnccat ttagaggcac 540
caaaaaccgc gcctnaaagt cggganaa 568

```

<210> 241

<211> 542

<212> DNA

<213> Mouse

<400> 241

```

ctccggtagt ttgttcgccc tggcgtctga ctttccaatg ctgagaccag aagtcctcag 60
gtttgctatc ctcagtccgg ggggactttg agacgacgag tagtttcaag ggtgacctgg 120
gctgaggcca ggaatgactc tactcccctg aaaaaggatc aaaggcgtct aaaacgtctt 180
tggagcccc tctgaatata tctgatggtg tatacgagc taacagacat tgggcgcaac 240
agaactaatc gactgtgtga tcggttatgc cattaaattc tttctagaag ctgaagcatc 300
atcctttggt aaaaaaacgg tgtgcataga aaaagaggat ggcctttcaa ttcaatttca 360
gcatagaaga agatctggaa aataaattaa catccctcga tgatggaact tgtgtcttag 420
aaagtcagaa aggaaagcag gacaaaaggg caatctacag aacgtccggg gcttgccctg 480
ggatcactct tggaaatgct cctcactggg gaaatgcagc ttntcttgaa gacactggca 540
gc 542

```

<210> 242

<211> 543

<212> DNA

<213> Mouse

<400> 242

```

cggaaaacat gtcgaggtgc accgggaacc ctgacgtcaa aaagagatgt cctcagcctg 60
ctgaacttgt cccctcgga cggcaaggag gaggggtggg cagacaggct ggaactgaag 120
gagctgtctg tgcagcgga tgacgaggtg ccacccaaag tccccacca cggccactgg 180
tgcacggata cagcaacact gaccacggcc ggtggccgca gcaccacagc tgccccgcgc 240
cctctgagac ttcccttggc caacggttac aagttcctgt cccaggaag gctcttcct 300
tcctccaaat gttaaagcag cttcttgccc ccaactcagt gcacactcca gccagagtcc 360
cggggccct gatgcagcgt ggtcaccac ccacatagcc actgntacca tccctcccc 420
gacaggcggg ctccctggg aaggtcactg ccacgcaaa tgccactgta ctcacgggta 480
aacctgggc cagattcacc caaagcaggc ctcacgtggg aatggcagcg cttctctgcc 540
ggn
543

```

<210> 243

<211> 531

<212> DNA

<213> Mouse

<400> 243

```

ctccggtagt ttgttcgccc tggcgtctga ctttccaatg ctgagaccag aagtcctcag 60
gtttgtatc ctgagtcgg ggggactttg agacgacgcg tagtttcaag ggtgacctgg 120
gctgaggcca ggaatgactc tactccctg tgagggctga actgaaaaag gatcaaaggc 180
gtctaaaacg tctttggagc cccctctgaa tacatctgat ggtgtatacg cagctaacag 240
acattgggcg caacagaact aatcgactgt gtgacgggt atgccattaa attctttcta 300
gaagctgaag catcatcctt tggtaaaaaa acggtgtgca tagaaaaaga ggatggcctt 360
tcaattcaat ttgagcatag aagaagatct ggaaataaaa ttaacatccc ctgagtgatg 420
gaacttggtg cttagaaagt cagaaaggga agcaggacaa aggcattctac agaacgtccg 480
ggcttgctc ggggatcact cttggaaatg ctctcactgg gnaatgcagc t 531

```

<210> 244

<211> 545

<212> DNA

<213> Mouse

<400> 244

```

gaccagagga ccggtgcaga atctggccct gcttccccag agaggcttat ggttgaggcc 60
cctaccagga tgctacaggc tcagatagag tggataaggg actgccc aaa ggcataatgct 120
gccctttgga ttctctccct ccaccagtga ctgacaatat ggcccttctt ggcacctcct 180
attctccac tatggccatg caagtggggc atcaaggga ctagccatgc catgtgatca 240
cggcccaaaa aaccttctta cctcacacc actgtcccat tgcttctaag aaggacgcca 300
agccactgtc tcaaagcact ctttaagccc tggggaagct tgctccttca aaggatctca 360
ggtggacata agtgagttt gaattcctta aatgaggttt gaaagaacct tcacaccgct 420
tctccactat cttctcaac attttcgagg tctgaccact aagtcacaag acttgaacta 480
tgtctgtgct tcttttgact tcactcctgg cgggattcga atagggcagt tattganggg 540

```

cccac

545

<210> 245
 <211> 370
 <212> DNA
 <213> Mouse

<400> 245
 nncgtangcc nnnnnangta ccggtccgga attcccgggt cgacccacgc gtccggacca 60
 gaggaccggt gcagaatctg gccctggctt ccccagagag gcttatggtt gngggcccta 120
 ccaggatgct acaggctcag atagagtgga taagggactg cccaaaggca tatgctgccc 180
 tttggattct ctccctccac cagtgactga caatatggcc ccttctggca cctcctattc 240
 tcccactatg gccatgcaag tggggcatca agggacctag ccatgccatg tgatnnccgc 300
 naaaaaatnt tncctanccn caaanncccn ttcctngaa agggngggang gccnnnnnna 360
 aggttttaag 370

<210> 246
 <211> 651
 <212> DNA
 <213> Mouse

<400> 246
 cnngcnngng cnantccccc-ggtggtnnc tgccaggtnc nggtccggaa ttcccggtc 60
 gaccacgcg tccggaggcc cctaccagga tgctacaggc tcagatagag tggataaggg 120
 actgccc aaa ggcataatgct gccctttgga ttctctccct ccaccagtga ctgacaatat 180
 ggcccccttct ggcacctcct attctccac tatggccatg caagtggggc atcaaggagc 240
 ctagccatgc catgtgatca cggcccaaaa naccttctta ccctcacacc actgtcccat 300
 tgcttctaag aaggacgcca agccactgtc tcaaagcact ctttaagccc tggggaagct 360
 tgctccttca aaggatctca ggtggacata agtgagtgtg gaattcctta aatgagggtt 420
 gaaagaacct tcacaccggt tctccactat cttctcaac attttcgagg tctgaccact 480
 aagtcacaag acttgaacta tgtctgtgct tcttttgact tcacctggt cgggattcga 540
 ataggcagtt attgagggc ccaccagtng acactgtgta ctttaacta tttgctctcc 600
 cgctgectgc tagccaggac acccagttag taggctttct tgaagaggct g 651

<210> 247
 <211> 439
 <212> DNA
 <213> Mouse

<400> 247
 ctgctgggag cgggtggact gcgggtggt ttctctttct aagcgtagcc aggagctatc 60
 gctggcctcg ccgccaccat gactcgtaac tacaacgatg agctacagtt cttggacaag 120
 atcaataaaa actgctggag gatcaagaag ggctttgtgc ccaacatgca ggttgaagga 180
 gtgttttatg tgaatgatgc tctggaaaaa ctaatgtttg aggaattaag gaacgcctgt 240
 cgaggtggtg gtgttggtgg ctttctgcca gccatgaanc agattggcaa tgtggcagcc 300

ctgcctggaa tanttcatcg gtctatcggg cttcctgatg tccattcagg ctatggggtt 360
gccatagga acatggctgc ctttgatatg aatgacctg angccgttgt atccccangt 420
ggtgtcggat ttgatatta 439

<210> 248

<211> 441

<212> DNA

<213> Mouse

<400> 248

ctgcgtggaa cgggtggact gcgggggtgt ttctctttct aagcgtancc agganctatc 60
gctggcctcg ccgccaccat gantcgtaac tacaacgatg anctacagtt cttggacaan 120
atcaataaaa actgctggag gatcaagaag ggctttgtgc ccaacatgca ngttgaaaga 180
atgttttatg tnaatgatgc tctggaaaaa ctaatgttg angaattaag gaaccctgt 240
ccaagtgtg gtgttggtgg ctttctgcca ccatgaaaca aattggcaat gtngcagccc 300
tgccctggaat aattcatcng tctatcgggc ttctgatgt ccattcaggc tatggggttg 360
ccataaggaa catggctgcc tttgatatga atgaacctga agcnttgtt tccccnngnn 420
gtgtccgaat tgaaattaac t 441

<210> 249

<211> 555

<212> DNA

<213> Mouse

<400> 249

agcatcgtgt tcatcttcgt caacgaggcg ctctcagtgc tctgcggtc catccactcg 60
gccatggaac gcacgccatc acacctgctc aaggagatca tcttgggtgga cgacaacagc 120
agcaacgagg agctcaaaga aaagctgact gaatatgtgg acaaggtgaa cggccagaag 180
ccaggcttca tcaaagttgt gcggcacagc aagcaggaag gcctcatccg ctccagagtc 240
agcggctgga gggcagccac agccccgtg gtggcactgt tcatgcccc cgtggagtgc 300
aatgtgggct gggcggaacc agtcctcacc cgcacaaagg aaaaccggaa acggatcatt 360
tcaccatctt ttgataacat caaatatgac aactttgaga tagaagagta cccgctagcc 420
gccaaggct ttgactggga gctgtggtgc cgctactaaa acccaccaca ngcctgggtg 480
nagctagaga actccacagn cccaattca ggagccctgg cctcattggg ctgtttaatt 540
gttggaacng nagtn 555

<210> 250

<211> 563

<212> DNA

<213> Mouse

<400> 250

ctttcagcag aaggatttct gtttgtgttg gggggccaag atgaaaacaa gcagacgctg 60
agctcaggag agaagtatga cccagacgct aacacgtgga cngcgctccc acccatgcat 120
gaggcaagac acaacttttg gatcgtggag atagacggga tgctctacat ccttggaggg 180

```

gaggatggcg atcgagagct catttccatg gagtggtatg atanttatc caaaaccnng 240
acgaagcagc ccgacttgac catgggttagg aagattggct gctatgcagc tatgaaaaan 300
aaaatctatg ccatggggcgg aggtctcgat ggaaaactnt ttgagtcctgt ggantgttac 360
gaccacgga cccagcaatg gactnccata tgcccactgn aagagaggag gtttggagca 420
gtngcctgtg gtgttgccat ggagcngtat gtgttttgag gcgtccgaag tcgngaggac 480
attccagggn cagcnaaatt gttnanccgc aaagtcnnga gttcttttca tgncgntttt 540
aanaggnggn tectnccctt aac 563

```

<210> 251

<211> 542

<212> DNA

<213> Mouse

<400> 251

```

agatgggtgtc tgcaggaag aaacggaagg ctggcgcca cgaggagagc ataccgagcc 60
caccggggta ttcagctgtt ccagtcaagt tctcgcaaa gcagcaggct cctcattacc 120
tctacatgag acagcaccga gtctcgcaag gacccagtc cacatggcct cccgatcgaa 180
ccctttttat ccttaaatgtg cccccgtact gcacacagga gagcctgtct cgggtgcctct 240
cctgttgctg caccatcaag acagtggagc tgcaggagaa gcccgacctt gccgagagcc 300
ccacggagcc aaagtcacag tttttccatc ccaagccggt gccgggcttt caggtagctt 360
atgtgggtgt ccagaagcca agtggagtgt cggccgcctt gaacctgaag ggccattg 420
tggtttctac agagagccac cttgtgaaga gcggaattca caagtggatc agcgactatg 480
aagactccgt gctggacctt gaaggcctga gaatggaagt agacgcattc atggaggcct 540
at 542

```

<210> 252

<211> 494

<212> DNA

<213> Mouse

<400> 252

```

cagacactgc ccgctgtgaa ggtgcccact gttgagtgt acaacaccna cacatgtgcc 60
nngagtggcc tggcacgtac ctgccaccat cgaatccgcc tgggggactc tgacagccac 120
tattacatct caccgtcctc ccggggccagg atcaccgcag tatgcaactt cttcanctat 180
attcgctaca tccagcaagg tctgggtcgg caggatgctg agccgatgtt ctgggagatc 240
atgaggcttc ggaagggcat gtcactagcc aagcttggct tcttccccca ggaggcctag 300
ggcatggccc caggcctgaa gtaagctctg agctagagca aacagctgcc ttgggacaga 360
cagacaagaa atcctggagc cagctctgag ccagaagctg aaaggacaga taaacaacca 420
ggctgtagag acagtctga gcccgtagca cncatccgtc ctgagacaga caaaaggaca 480
gcctggcctg gant 494

```

<210> 253

<211> 516

<212> DNA

<213> Mouse

<400> 253

```

gtcaaaagaa gagattgcaa atcaaaccgg agcacgggat tcgagttctg aaaataaaga 60
aggagaatcc tgcagaggaa agatcgccct gtcagatatc cgaataccat taatgtggaa 120
agactccgat cacttcagta ataaagaatg cacacagcgc ttcgccatct tttgcttatt 180
caggatggga gctcagggtg ttgacacgga catgggtgatt gtggaccaga cagtcacaga 240
tatatgtttc gaaaatgtca ccatcttcaa cgaggcagga cgggacttcc agataaagat 300
agaagtctac agctgcagcg cagaggagtc ctccctaacc aacaccccga ggaagctggc 360
taagaagctg aagacgtcca tcagcaaagc cacgggaagg aaaatcagcg cancttccag 420
gaagagagcc cagaggcgtg cttgctcgtg ggttctgtgg caggtgcaaa gtaccatttg 480
ctggctcata ccacctgact ttgggaaatg ctggggg                    516

```

<210> 254

<211> 525

<212> DNA

<213> Mouse

<400> 254

```

gagagggtcc gacagagtgc cgactttatg ccccgctggc aaatgatgag agttctagaa 60
gaggagctag gcaaggactg gcaagacaag gtggcctccc tcgaggaaagt gccctttgct 120
gtgcctccca ttgggcaggt acaccaaggc ttgctaaagg atgggactga ggtggctgtg 180
aagatccagt acccaggtgt tgcccagagc atccagagtg acgtggagaa cctgctggcc 240
ctgctcaaga tgagtgtggg cctgccagag ggcctgtttg ctgagcagag cctgcagacc 300
ttgcagcagg agctggcttg ggaatgtgac tactgcagag aagcggcctg tgcccagacc 360
ttcaggaagc tcttagctga cgacccttc ttccgagtgc cagctgtggt gcaggagcta 420
tgcactacac ggggtgctggg catggagctg gctgggggaa tccctctaga ccagtgccag 480
ggcctgagcc aagacatccg gaatcagatc tgctttcagc tctctg                    525

```

<210> 255

<211> 591

<212> DNA

<213> Mouse

<400> 255

```

gattttcaag anttgctgct cttectccag aacctgccta ctgcccgtg ggntgaccan 60
gatgtcagcc tgctnntggc tnaggcctat cgctcaagt ttgccttcgc agacgncccc 120
antcactaca anaagtgagc ctggggcccn tngcagtngc ntcaccctag ggatagcatc 180
ccctctctgc ctgggnagtt nctggcntct ggactggtcc tttccngntg tgacctagca 240
caatggaccc ncnatgggcc nanggttggg agganaggna gccnnanttt gancagannc 300
nnnggangnc ccagaagnga ntctggntt cagnaagctc attntggcca ggagtgcctc 360
caccctggcc ctcccttgcn aaaatgnccc taccttaana gcncnnagt ccangacagn 420
ccaangaggn aagtccctc angagagncc ctgctgtan gtacggggtg nnatgcagag 480
gtggtgnaag ccatcttaag gctgctctna tttggcacca antctnttct gttcanntng 540
agagaaatan agtcnngna aaanaatgcc gannatgggc nnnnggnttg g                    591

```

<210> 256
 <211> 580
 <212> DNA
 <213> Mouse

<400> 256
 ctctcgtgggc ttgtctgttg ttggacagct ctaccttcgc tggaaagagc ctgactggcc 60
 tcgacctctc aagctgagcc tcttttttcc catcgtgttc tgcgtctgct ccttgtttct 120
 ggtggccgta cccctcttca gtgacaccat caattccctc attggcattg ggattgccct 180
 ctctgggggc cctgtctact tcttgggtgt atacctgccg gagtcccgga gaccactctt 240
 tattaggaat gtgctggcta ctgtcaccag agtcacccag aaggctttgc ttttggctctt 300
 gactgagcta gaatgtaact gaagagaaaa atgttgagag gaaaactgac tagaagccag 360
 agatgacatt ccctgaangc ccaaaaggct gtggctcgag gccaccanaa gaccnngttc 420
 cctaaaaant tctgnnttaa anggnctctc tggccccaca ttctgtaagg ggggctcagg 480
 ggccaatggc ttctcctcaa ttgggtaaag ctaatgggga agataccaat tnaggccagc 540
 cttnaaagaa ttggganntn cnaatggnan gggggagggt 580

<210> 257
 <211> 543
 <212> DNA
 <213> Mouse

<400> 257
 gggaaagcag aaatgatcat tgaaaagaac accgacgggg taaactnta taacatctta 60
 nntaaaagca gcccgagaa agctatggaa tcgagcctcg agttcctccg gagcccccta 120
 gtctgtctct gtcagcgcca tgtgagacac ctgcaaggag acgccttaag tcaactcatg 180
 aacggcccca tcaaaaagaa gctcaaaatt atccctgagg atatctctcg gggagcccag 240
 gcatcttatg tcttcctaag catggaaggg gacttcatga agcctgccat cgacgtttgtg 300
 gataagttgc tggcagctgg ggtcaatgtg accgtgtaca acggacagct ggatctcatt 360
 gtggacacca taggtcagga gtcttgggtt cagaagctca agtggccaca gctgtccaaa 420
 ttcaaactcag ctaaaatgga aggccctgta caacgatcct aagtctttca gaaaacagct 480
 gcgtttcgtc aagtcctatt gagnacctag gcttcnnact ggatcctaaa agggccgggt 540
 caa 543

<210> 258
 <211> 580
 <212> DNA
 <213> Mouse

<400> 258
 cggaacgggtg gctganatgg cccctgttgg catcctcaaa tccatcatga agaagaaaga 60
 tggtatccn ggtgcacaat ccagtcaggg acccaagagt ctgcagttcg ttggggtcct 120
 caacggagag tatganagtt cctccagtga ggatggcaac agcgangatg aagatgggtg 180
 tgctgaacac cccaggagta gctcttctgg atcagatgat agcagtgggg gatctgacgc 240
 tggaaaccct ggccccaca atgacaaaaga tgctggggac tgcgagcttg agacacatcc 300
 agagctgacg gcagggagan aanggaggng tgaactgaac ccccgtttga gggaggcttg 360

cnttgctctg aatcagcagc tgaaccggcc acgtggagtc accagcatga tggcaatgca 420
 gcacgccttg tggcccanga atggtttcga gtgtccagcc aaaaacgctc tcaggcagag 480
 tctgtggcta gggttcttcn agggtgaaaa acctggggcc tgaactgctn gntatgtggg 540
 tnaactggnt gatggcaatg gnaaacacag cnetgcattn 580

<210> 259

<211> 578

<212> DNA

<213> Mouse

<400> 259

ggcgagaaac tggacatcat ccggcagaag cgectgtctc acgtgtcttg ccaccgggtcc 60
 tattacctgc gtggggcagg agccctctta cagcacggcc tgggtcaactt caccctcagc 120
 aagcttgtca gcaggggctt ccccccatg acgggtcccag accttctgag aggagctgtg 180
 tttgaaggct gtggaatgac accaaatgcc aacctatccc agatttataa tattgacccc 240
 tctcgcttcg aagaccttaa cctggccggg acggcagagg tggggctggc aggatacttc 300
 atggaccact ctgtagcttt cagggacctt ccagtcagga tggctctgtgc cagcacctgc 360
 taccgggcag agacagacac tgggaaggag ccttggggac tgtaccgagt ccatacttc 420
 actaagggtg agatgtttgg ggtgacaggc cctgggctgg agcagagctc gcaactgttg 480
 gatgagttcc tgtctctgca ggtggagatc ttgaacggag ctgggggtgc acttcggggg 540
 tattggacat gccanccaa ggaactnggn cnttcctt 578

<210> 260

<211> 571

<212> DNA

<213> Mouse

<400> 260

gccgtacgtg aaggcgagtt tctccggtag tttgttcgcc ctggcgctctg actttccaat 60
 gctgagacca gaagtcctca ggtttgctat cctcagtcgc gggggacttt gagacgacgc 120
 gtagtttcaa gggtagacct ggctgaggcc aggaatgact ctactcccct gtgagggctg 180
 aactgaaaaa ggatcaaagg cgtctaaaac gtctttggag cccctctga atacatctga 240
 tgggtgtatac gcagctaaca gacattgggc gcaacagAAC taatcgactg tgtgatcggg 300
 tatgccatta aattctttct agaagctgaa gcatcatcct ttggtaaaaa aaacgggtgtg 360
 catagaaaaa gaggatggcc tttcaattca atttcagcat agaagaagat ctggaaaata 420
 aattaacatc cctcgatgat ggaacttgtg tcttagaaag tcagaaagga aagcaggaca 480
 aaaggcaatc tacagaacgt ccgggcttgc ctcgggatca ctcttggaat tgctcctcac 540
 tgggaaatgc agcttcctct gaagacactg g 571

<210> 261

<211> 573

<212> DNA

<213> Mouse

<400> 261

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agatgggttg ctaggcagca ggaataccca tgcgcagtgt ctcaggggtg gccccaccac 60
tgcagcagtc aagcggcctc tcttccccag gtacctggcc agtgggtccg gagacaccac 120
tgtgcgcttc tgggatctca gcactgagac accgcacttc acatgcaaag gacaccggca 180
ctgggtcctt agcatatcct ggtccccaga tggcaagaaa ctggcctcag gctgcaagaa 240
tggccagggt ctgctgtggg acccaagcac ggggctgcag gtgggcagga ccctcactgg 300
ccacagcaaa tggatcacag gcctgagctg ggagccctt cacatgaacc ccgagtgccg 360
ctacgtggcc agcagctcca aagacggcag tgtacgagtc tgggatacaa ccgcaggccg 420
ctgtgaacgc atcctcangg gacacacgca gtcagtcacc tgctccgat ggggaggaat 480
gggcttctat attctgcttc cnaggaccgg aaccatcaaa gtctggaggg cccatgacgt 540
aaancnttt attcccttaa agggggggcc aan
573

```

<210> 262

<211> 589

<212> DNA

<213> Mouse

<400> 262

```

aggagtgttg actaagttgt gcagaaagaa gcctaaagca aggcagtttn tcttatttaa 60
tgatattcta gnatacgga atattgttat ccngangana aaatacaaca aacagcatat 120
natncccttg gaaaatgtca ccattgattc catcaaagat gnaggggnat tacggaatgg 180
atggcttatt aagacaccga ctaagtcgtt tgcagtttat gcngccactg ccacggagaa 240
gtcagagtgg atgaatcaca taaataagtg tgtcactgat ttactctcca aaantgggaa 300
gacgcccagc aacgagcatg ctgctgtctg ggttctctgac tctgaggcca ccgtgtgtat 360
ncgctgtcag aaagcaaaat tcacaccagt caatcggcgg gcaccattnc cgcaaattgt 420
gctttnntgt ttgtngtccc tgctctgaaa aagcgatttc ttcttcccaa cccagtcctnt 480
taagcctgnt gcggattttg tggaacntct tgccnaagga nctggcttcc ccacnggggg 540
acattggccc cngtnttaag cccgnctaag aatcanacc tcnttttag
589

```

<210> 263

<211> 578

<212> DNA

<213> Mouse

<400> 263

```

gggagtggga tacaccctcc ctcccttagct caccaggnng cctgggctcc aggtcgccca 60
ccttacctcc caaggcaaca gagtgatggg agcctggtaa gaagccagcg gcccttgggg 120
acctcaagga gaagtcccag agggccttcg caggtcagtg cccatctcag ggcaagcggg 180
gcttacaggg atgctccaga gatggcagcc cagtcacat gttctgtccc ctcacagggt 240
tctaacccca gcttcttctc aacccccga gagtgtttgc cacctttcct tggcgctccc 300
aaacaaggct tgtactctct gggaccccca tcctccccc ctactctccc agccccagtc 360
tggaggaact ctctgggtgc cccctcagca ttggacaggg gagagaatct gtactatgaa 420
attgggggtac gggaggggac ctccactca ggccccagcc gggctcctgga gtccgtttcg 480
ctccatgcct cccgagangc ataagtctct atggnatgct tggccagtca caacgcttca 540
caggtccctg atttctactn taaactaccc cccttccc
578

```

<210> 264
 <211> 610
 <212> DNA
 <213> Mouse

<400> 264
 tntcaggaac actcatgacc ngtagacccta ggggntcaaa agagcagaga nccttantcc 60
 gntcaagacc angencatga acacactcat ggatgttctg cgccacaggc ccggatgggt 120
 ggaagtcaaa gatgaaggcg aatgggattt ctattgggtg gatgtcagct ggctgcggga 180
 gaactttgac cacantacat ggatgagcac gtgcgcataa gccacttccg gaaccactac 240
 gagcttacca ggaaaaacta catggtaaag aacctgaagc gcttccggaa gtacctggag 300
 cgtgagtcag gaaagacgga ggcagccaag tgtgacttct tcccccaaaa accttttgaa 360
 atgccctggt gagnaccatc tgtttgtgga ggantttcnc aaaaaccccc ggggatcacc 420
 ttggattcat gaancctgtt cgncccgatc ttcaaagggg gaaagggcnt aattttctct 480
 ttccggaaaa ctnaaaaaaa ccattcnttg gantttggaa ggaaaggggc cccntttccc 540
 gggggaaaaa aacccccncc cgggnnttg gaaaaacccc agcccntnnn tttcgaaggc 600
 caaanaatnn 610

<210> 265
 <211> 180
 <212> DNA
 <213> Mouse

<400> 265
 attcatgcat agtgtatgga cttcgttttg tagcaaatca caggatttgt tcaaataaca 60
 gatcttttaa gtgtatgaat gtaaataatc atagatgaga gtgtacctcg ctgtattttc 120
 aaataagtaa cctttttaag acattaaaac tcaatatatc agttgaaaaa aaaaaaaaaa 180

<210> 266
 <211> 602
 <212> DNA
 <213> Mouse

<400> 266
 accacgcgtt ggccttaaga tccaccgang agggngccng gtacngccaa tcctggccag 60
 cggacnagta tccnctnnag cttgncgnna actagncggt ctncatgaag aacntgagtt 120
 nagtnntat tnacattacn atttntnnn gangcnntac cnggagcgat cnnannngna 180
 ggntgtggac ctgnttgtgg gncagttgan aagttacctc gggnnannna gnetcngggg 240
 ntenctecn nancntngan gtgntnttg ngcnttncn ntncatcccc nagnaaggan 300
 nttgctgtnt ggnaaagnna tcttgnngg cnttgcttcn gcnttttnac cnaggaggat 360
 canatanagt cggaggaatn gccccagtg ttttgacncc ttgtcggnan aaanantccg 420
 anagtancna agaaggngn ccagtnatnn gcttcncccc ggaatcctng ggttgntacc 480
 atctgaancn gnttttanac ctnccgagg gctctagtna ncanaagttt cagtaagggt 540
 gaagangtnc ccnactngcn gannntaag ccnagggng ncttttgncc aggcnnnaaa 600
 ng 602

<210> 267
 <211> 544
 <212> DNA
 <213> Mouse

<400> 267
 tacagcgaga cctggctcggg gtagaaaacc tcattgctcc tgggagggag tttatccgtg 60
 agggctgcct gcacaagctc accaagaagg gcctgcaaca gaggatgttt tttctgttct 120
 cagatatgtt gctgtataca agcaaaagtg tcacaggagc cagtcatttc cggatccgtg 180
 gcttccttcc actccgtggc atgctggtag aagaaagtga gaatgaatgg tctgttcctc 240
 attgcttcac catctatgca gctcagaaaa caattgtggt agcagccagc actcggctag 300
 aaaaggaaaa gtggatgcag gacctgaatg cagcaatcca agcagccaag actatcgggtg 360
 actcaccctc agtgctgctg ggaggcccg tgtatactcg taccctaga tcttctgatg 420
 aagtctctct ggaagaatca gaagatggtc gaggaaaccg gggctccctg gagggggaaca 480
 gccagcaccg ggggcaatac aacaatgcat gtgtgctggt accgtaatac aagtgtgtcc 540
 agag 544

<210> 268
 <211> 510
 <212> DNA
 <213> Mouse

<400> 268
 gcnagtgtg ctcaggaaac tgctaccttg tcctctacac ataccagaaa ctgggctgtg 60
 tccagtacct cctgtacctg tggcaggggc accaaagcac tgtagaagac accaaggccc 120
 tgaactgcag tgctgaagag ttggacctca tgcaccaggg tgactggcg caggggcatg 180
 tgacctggg cagtgagect cccacttcc tagccatctt ccaggggcgg ctggtggtct 240
 tccaggggaa tgcaggcaac aaaggggaaa gaccaccagt atccgacacc aggcctttcc 300
 acgtgcaagg gaccgagagc cacaacacca gaactatgga ggtgncggcc cgtgcctcct 360
 cctcacttc tggtagctc ttctttctga tcacaagtca tgtttgctat ctctggtttg 420
 ggangggctg tcatggggan caaacgtgag atggcgcgga cgggtggtca gtgttcttcc 480
 ccagggaana ncaaggagac aattctggan 510

<210> 269
 <211> 545
 <212> DNA
 <213> Mouse

<400> 269
 ggatcatcga ggctttcggg gtgcgtgccg cggactctcg ctggagccgg gaccctctct 60
 accgagacga cccttgtaag cagtgccgca agagatacga gaagggtgat gtgtcactct 120
 gccgctggca ccccaaacc taccacctg acctgcctta cggacgttcc tactggatgt 180
 gctgccgcag agccgatcgt gagacaccag gctgtcgctt gggcttgcac gacaacaact 240
 ggggtactgcc gtgcaatgga gtgggtggag gccgtgctgg ccgggaagag gggaggtgaa 300
 gcccggtggat gaggggacac ctgcgatacc tagccctcc ccgctttgcc gggagctggg 360

gaccaggact gagtcaccag ccgacaccta ccagtcctatg cggcagcatc catctccccc 420
 cagaactggg accaggtttg gggatcaaca nggcaaatan cttgcttgac ctctgttggg 480
 tttttattct tcagaaccag ggccatggac cctcagagaa ggggtgtggn 540
 ttttt 545

<210> 270

<211> 548

<212> DNA

<213> Mouse

<400> 270

gaacatagat gtggcgactt ggggtgcggct gctccgtaga ctcaccccta gtgctgtggc 60
 cactggcacc ttcagtccca atgcatctcc aggtgctgag atccggcaca ctggagacat 120
 atccatggag aaattgaatc tcgggtgctga ctcagacagc tcgtcccaaa agagcccacc 180
 agggctgccc tccacctcat gcagcctgag ttctccaacc catgaatcca ccacatctcc 240
 agagctgcct tcagagaccc aggagactcc agggcctggc ctgtgcagcc ccttgagaaa 300
 gtcgccccctg acacttgagg anttcaagtt cctggcagtg cttggccggg gtcacttttg 360
 aaagggtgctg ctgtctgaat tccgctccag tggggagctc ttgccatca aagccttgaa 420
 gaaggtgaca ttgtaagccc gagatgaggt taaganctga tgtntnaaaa gcgggatttt 480
 ggcggccgtg aaccangggg agganatccc tttcctggtg aacccttttc ggggtgntttc 540
 aanacccc 548

<210> 271

<211> 528

<212> DNA

<213> Mouse

<400> 271

ggctgacggg gtcaagtcct ggttgctaaa gaacaaggga ccttctaagg caccttctga 60
 cgatngcagc ttgaagagtt ccagcccaac cagccactgg aagccactcg cccctgacct 120
 atcggatgat gagcatgac ctgtggacag catctccaga ccccggttct cccacagcta 180
 tctgagtgac agcgacacag aggccaagct gacagagacc agtgcatagc ctgggatggc 240
 tcacgactct cccacccac agcctctccc aggatagagg ggcaccactg ccccccactg 300
 actgccgatc tgcattgaaa acaccttggc tttctgtcag ggggactttc caggctgtgg 360
 gcgtctgaca gctccacgcg gcagagggtg gcgaanagag tctctcāaa gagagcttcc 420
 gtcttgctc tgaacgccat gctcttagtc ccgctctggg ccactatgga ccacgtcagg 480
 tggcctggca ttccatggag ccggtggtn g actncatctc agcctctg 528

<210> 272

<211> 546

<212> DNA

<213> Mouse

<400> 272

actagntntn cgatcgcat ggattccctt naagtcttcc aagcctnaca gatccacacc 60

```

tggaacctgt aggagcccan gaacancgcc acatcggnntt tattcangtg atcacaaata 120
tggatggatt anatatagtt caacctccan ctgggnaaat tgtnaatgaa cttttcaaag 180
aggcaangga acatggagct gtcnctctaa acgaancnac nanatcttca agggnggaca 240
anactaagtc atttacaggt ggaggataca gattggggaa ttcnctctan nancgatcag 300
agtatatcta tgggganaat cagctccaan atgttcaggt ttaactgaan ctgnggcgca 360
atgggtttca ntttaaaacg agggaaaant naaggcntac agtcgaccca aacaaaatnc 420
ngggntttta ngaatctgtt anganaggga gnnactcccc ctggaagctt tcannnactg 480
gtgnnnngcg ccccannttt naccctgggt tatgggggga ntcacnaag acccaagagn 540
ttttta

```

<210> 273
 <211> 514
 <212> DNA
 <213> Mouse

```

<400> 273
gatgaaatta tttacactgg gaattataat gcaattttta atttaaaaaa atctcttaat 60
tcgnngactt ttttaaattc aagaatttcc aaagaagaaa gcttcgtttg taatcatatg 120
tggctggtgg atagcctccc agagttgagt gtttccccac agcagaagag tgtggtctgt 180
gagaacagaa cttcataggc agtcaccagg gtgaaggagg gaggcaagga ccctgttact 240
atgttgctaa aattgtcaga atcgccacaa actcagaagg gatacaaatt atcccattgg 300
atttttgcct gagttccatt ttaaggtcac atctgaagaa ctcagggtga cttcttttga 360
aatgtaagtt atttcataag actatgtagc ttcttatttt aaaatagttt gtctgtttgt 420
agtttttatt tatgatctct gatgtttaaa ggctttattc aggtgatcac aaatatgatg 480
gattacatat agttcaacct ccaactgggg aaat

```

<210> 274
 <211> 512
 <212> DNA
 <213> Mouse

```

<400> 274
attcaagcag gaggtagagg ggacagcagg gctcctgtat gttgatgacc ccaactggcc 60
tggaatcggg gttgtcaggt atgagcatgc gaatgatgat gacaccagtt tgaaatctga 120
tccagagggg gaaaaaatac aactggact tctgaaaaag ttaaatgaac tggaatctga 180
cctcacattt aaaataggcc ctgagtacaa aagcatgaag agctgcattt acattggcat 240
ggcaagtgat gatgtggacg tttctgagct agtggagacc attgcagtca cagcccggn 300
aattgaggag aactcaaggc ttctagagaa catgacagaa gttgttcgga aggggaattca 360
ggangcacag gttcagctac agaagggcaa atgaggagcg gcttctggna gagggagtgt 420
tgcggnaaat ccctgtagna ggatccgtgc tgatnggnntt tctccagtcc aggtttcacn 480
ggaggggaag aagtttntaa cttaaacagn ng

```

<210> 275
 <211> 537
 <212> DNA

<213> Mouse

<400> 275

```

atgaaaagggt gcaggatgag gagccccagc nccccaccgg ggctcagggtg aagcgccacg 60
cctcctcctg cagtgagaag tcccaccgtg cggacccgca ggtcaaagtc aagcgccacg 120
cctccagtgc caatcaatac aagtacggca agaaccgggc ggaggaggat gcccgaagggt 180
acctggtaga aaaagagagg ctggagaaaag agaaggaaaac gattcggaca gaactgacgg 240
ccttgcgaca ggagaagaaa gagctgaagg aagccattcg gaacaaccca ggagcaaagt 300
cgaaggcctt ggaagaggcc gtggccactc tgggaagctca atgccgtgcc aaggaagagc 360
agaggattga cctggagtca agctggtagc tgtgaaggag cgcttgagc agtccctggc 420
cggggggtccg ggcctccgtc tgtccgtgag ccaaccaaga acaagagccc agacacttac 480
caattaaanc cccaaaagcn ttgcccaga gcaatntttc cnttgtcaa ctttgnt 537

```

<210> 276

<211> 497

<212> DNA

<213> Mouse

<400> 276

```

ngnagagact gtctggnaa actgatctat gnacggntgn tngantggnt gngtctgtg 60
atnaacagna gcatcngngn agactccaaa tcatggactg cttcatagg gctgctagat 120
gtgnangggg nngagtcatt tcctaataac agtttgaac agcngtgcac caactatgcc 180
aatgagaagc tacagcagca cttcgnggct cactacctca gggcccagca ggaggagtac 240
gaagttgagg gcctggagng gtcattngtc aactaccagg acaaccagac ctgcttagat 300
ctccttgaag ggagccccat cagcatctgt tccctcataa atgaggaatg ccgcctnaac 360
cggccaagca gtgcagcaca acttacagan gcgcatngag agcacgctgg gcaggaacgg 420
gcntgcctgg ggccataaac aagcttcagc cgggagcccn gctntcnggg aagagcattn 480
acgcgggggn cngtacg 497

```

<210> 277

<211> 551

<212> DNA

<213> Mouse

<400> 277

```

ggggagtctt gtgacaacga caagagcacc tgtcccaacg gtgggcctag catgtgcatg 60
gccagcggac ctggacaaga catgtttgag agcacacaca ttataggacg gatcatctat 120
cagaaggcca aggagctgta tgccctctgcc tcccaggagg tgaccggccc agtgcttgca 180
gtccaccagt ggggtgaacat gacagatgtg agcgtccagc tcaatgccac acacacagtg 240
aagacgtgta aacctgccct gggctacagt tttgccgag gacaattgat ggagtttcgg 300
gcctcaatat tacacaggga actacggaag gggatccatt ctgggacact cttcgggacc 360
agctcttggg aaaaccatct gaagagattg tagagtgtca gaaacccaaa ccaatcctgc 420
ttcacagtgg agagctgacg ataccacatt cttggcaacc agatattgtt gatgttcaga 480
ttgttaccgt tgggtcttng gcatagctgc tatccctggg gaattaacaa ccatgtcggg 540
acgaagattt c 551

```

<210> 278
 <211> 574
 <212> DNA
 <213> Mouse

<400> 278
 ggcgcgactc cctcagcatg gccatccaag aagtctacca ggagctcatc caagacgtcc 60
 tgaagcaggg ctatctgtgg aagcgagggc acctgaggag gaactgggcc gagcgctggt 120
 tccagctgca acccagcagc ctctgctact ttgggagtga ggaatgcaag gagaaacgag 180
 gcaccattcc cctggatgct cactgctgtg tggaggtgct tccggaccgc gaaggaaagc 240
 gctgcatgtt ttgtgtgaag actgccagcc gcacctatga gatgagcgcc tcagacaccc 300
 gccagcgcca ggagtggacg gccgccatcc agactgcat ccggctgcag gcggagggga 360
 agacgtcgct gcacaaggac ctgaaacaga agcggcgga gcagcggga cagcgcgagc 420
 aacgccgggc agccaaggag gaggagctgc tgcgactgca gcagcttgca ggaggagaag 480
 gagaggaagc tgcaagaact tgagctgctt caggaagctc aacggcaagc cgagcgggtc 540
 ttgcaggaaa aaggangagc gccgcgtaan naga 574

<210> 279
 <211> 563
 <212> DNA
 <213> Mouse

<400> 279
 ataaagtaca ctggacacta cttcataacc acgtttctct actccttctt cctgggatgc 60
 ttcggagtcg accgcttctg cctgggccac actggaacag cagttgggaa gctgctaaca 120
 cttggaggac tggggatctg gtggttcgtt gatcttattc tgctcatcac tggggggctg 180
 atgcctagtg atggcagcaa ctggtgcact gtctactaag ccctgctgct gtcctgcgcc 240
 agcaaggaaa gccagtgtt gcctgccaa gataattacta caagctctga actctcctct 300
 gagcatcacc atcttctctt ggaggaagga ccgaccaagt ttttcacccc aaatcttaag 360
 cttgcaaact agagtgcaca gcagtattgt ggagtcccg cgtacccttc ctcacatata 420
 caatctcaaa gagcaaagct ggtgacttct ctccagagat catcgtcagt gacgtttctg 480
 tgtggctggc tcttcagccg ttggaggcan ggggaccac caggataaaa ccaagttagt 540
 gtttatccac tcacagnctt ttg 563

<210> 280
 <211> 580
 <212> DNA
 <213> Mouse

<400> 280
 cggcctgtta gcagcagcat tgaccccgag ctctcagca ccaagcaggg tggccttaca 60
 ccctccagac nnaaggaacc ttccaaggtc gccagtggtc ggagcactcc agccctgtc 120
 aatcagacag atcgggaaaa ggagaaggcc aaagccaagg ctgtggccct ggactcagac 180
 aacatctcct tgaagagcat aggctcccca gaaagcactc ccaagaacca agcaagccac 240
 cctccagcca ccaagttagc agagctgcc acaaccctc tcagggccac agctaaaagc 300

```

tttgtcaagc caccctcgct agccaatcta gncaaagtca actccaacag ttggatcta 360
ccatcttcca gcgacagccc atgcttccaa ggncccagat ctgcatgctc cgagctcatc 420
aactgggggn nctctccctt cnngettcan tccccangcc cagnaccna tcctcaattt 480
taactcagnc agcttctccc agggcctgga gntaatgagg tgggttcagt gtcccaaang 540
gagacccggc ntngtacccc aaaantcttc agggntggga 580

```

<210> 281
 <211> 569
 <212> DNA
 <213> Mouse

```

<400> 281
attctttctac agtgagggct tggggaagct caaggacatg aagggtgctgt acaccaaccg 60
agcccaggct tttataaaac ttggggacta tcagaaggct cttgtggatt gtgactgggc 120
tctgaagtgt gatgagaatt gtacaaaggc ctatttccac atggggaaag cccacgtggc 180
cctgaagaac tacagcaagg ctaaagaatg ttatcagaag attgaagaga taaaccccaa 240
gctgaaggca caggtgaaag aacacctaaa tcaagtaact cttcgagaga aagcagatct 300
tcaagagaag gaagcccaag aatctctgga ttcaggaaag aacacagcag tgacgaccaa 360
aaatctcctg gaaaccctat ccaagcctgg ccagacaccc ttgttctatg caggaggcat 420
tgagattctg acagaaatga tggctgactg cacagagcga acgttgttca gaacctacgg 480
tggattcagc accatcagtg accatgaggt catcagaagg tgnctcttct taacagggaa 540
ggatgcatnc gaggagggtgc ttttcgttt 569

```

<210> 282
 <211> 523
 <212> DNA
 <213> Mouse

```

<400> 282
aggaattgag tttgttaaac attttcgtag tcaccttggg gttattgaga gtattgcagt 60
tagctctgag ggagcgttgt tctgctctgt cggatgatga aaagcgatga aggtgtttga 120
tgtggtgaac tttgacatga tcaacatgct gaagctcggc tattttcctg gacagtgtga 180
gtggatatat tgcccaggag atgccatctc ttcagttgct gcttctgaga agagtacagg 240
aaaaattttc atttatgatg gacgaggaga taaccagcca cttcatattt ttgacaaact 300
ccatgtatcc cctcttactc aaataagact aaaccagtt taaaaagcag tgggtgtctc 360
tgacaaatcc gggatgattg agtactggac tggaccgccg cacgaatata agttccctaa 420
aaatgtgaac tgggagtata agacagacac agacttatat gaatttgcca agtgaaggc 480
atatccaacc agcatatgtt tttcacctga tgggaagaaa ata 523

```

<210> 283
 <211> 519
 <212> DNA
 <213> Mouse

<400> 283

```

cacctgggtc tcagtagctc aattctccag gctgaggggt agacattaga tgttgttctt 60
tgcaaaactaa gcctgtggat cccttctcat tcatagttct gtatctctca aggatcttct 120
aattattata aaactactaa aggatactgt gctgttgaag gtatattgac agctgtcata 180
actcagcagt tgggtgccata tagactggag gtgtgggtctc tgtgctactg ttacaatctg 240
atgattagct ccacatttag gcaaatggaa gatgcccttt gaccccatg acacatttaa 300
ttccgtgttc tacttggatg agaagaggtc tgtgaatgtg tccatgatga aaattgagga 360
attgaccaca ccctacttcc gggatgatga gctgtcctgc actgtgggtg agctgaagta 420
caccggaaat gcaagtgcta tgttcacct ccctgaccag ggcaggatgc agcagggtcg 480
agccagctta caaccagaga ccctgaggaa gtggaagaa 519

```

<210> 284

<211> 522

<212> DNA

<213> Mouse

<400> 284

```

ggccaatgaa gatggcttga ctgcactgca ccagtgtgc attgacgact tccaagagat 60
ggcacagcag ctctgtggac ctggggctga tgtcaatgct cgagacagt agtgctggac 120
acctctgcat gctgcagcta cctgtggcca tctgcatctg gtggaactcc ttatttcacg 180
tgggtgcagat ctcttgcag tcaattccga tgggaatatg ccctacgacc tgtgtgagga 240
cgcacagacg ctggattgcc ttgagactgc catggccaac cagggtatca cccaggaggg 300
cattgaggag gcccgggcag tgccagagct gtgcatgctg aatgacctcc agaaccgcct 360
gcaagctggg gccaacctca gtgaccttt ggatcatggg gctactctgc tgcacatcgc 420
cgctgggtaa tgggttcagt gaggtggcta ccctgtgct ggagcaaggc gccagctgan 480
gcgctaagga ccatgatggc ttggagcctc tgcatgctgc gg 522

```

<210> 285

<211> 583

<212> DNA

<213> Mouse

<400> 285

```

canaagctag gacggtccgc cgaggctcgg aggtggaggg gcangettct ggangcgagt 60
atttctctaaa tgaccttaca ccctttgcc cactggctct gggccaagat gggccaatca 120
aagtccttac ccagaatttt ttgaactgaa attgagagag aatccctctt cagtatggaa 180
gccataaaat gtaanacaca gngctgtca gcagccatgt gtcttgcagt acgnggccag 240
ctggctgtct gngagaagga agccgccgtg ccanaggcag nagngaacca tgtgtgctca 300
gtactggatc tcctttgtct atgttgaaaa agctcatatn aacattcaag actctatcca 360
cgctnaccoc agtgntaaca agctcnattt tgantcaaat agnaggngnc aatctttttc 420
ttcaaatggg agctcttcca gaanaactng gngnctttta nnatttgagg tgcctttaa 480
ntccatnann ggnnttaatt cctgncnccc nccangaagn anagncccaa agncngtgng 540
ntnccctncn ggcagcggga aaccaatggn caaggctntn ncn 583

```

<210> 286

<211> 580

<212> DNA

<213> Mouse

<400> 286

```

ctactatggt caccactacc acacanaaag gacttcctcc ttggtgagcc tgttgggcat 60
tggcagaagc cccaanagca gtctccacac tgcactcaac gncagcctct tggccagccc 120
cgtagagatg gccacaacca gcancccg gacgacacac tcggggccang ctacagcggg 180
gntcagcctc ctcatcatgt tgggcacact ctggctangc tacaccctct accagttcaa 240
gaaaagnccc tacctgcacc catgtgtgcg tgagagcctg tntgactgtg ncctgnccat 300
ngnecgtgnt ctcttctcc ctcatcggt cctatggctt ccaggaatt gagatgagna 360
ngntccggtg taancccatg cgagatcntt ttttaggtgg ccannatcc actntttggn 420
ccttgaaggc caatngggan tgnatgggg tctgtgggtt ttctggnanc cttgcttngc 480
ctttcantgn ggngaaccng gatggccggc cctgtgttaa ntgcaccann agnannnggg 540
tgggtttnaag ggaanttnct caatnactgg ggnncnctn 580

```

<210> 287

<211> 639

<212> DNA

<213> Mouse

<400> 287

```

cttcctgtct tccgttgagc tgctcatcat tgaccaggct gacatttacc tgatgcagaa 60
ctgggaacat gtcttgcat tgaatgaacca catgaacctg ctgcccttgg actcacacgg 120
ggtggacttc tcgagagtcc gaatgtggag cctcaataac tgggtccaagt actaccgaca 180
gacactgctc tttggtgccc tgcaggatgc ccagatcaac tctgtgttca acaagcactg 240
catcaatgct caaggccagg tggctgtgag gaatgtcccc atgacgggct ccatcagtca 300
tgtgttggtg cagctccctc acgtcttcca gagaatggaa gcacaagacc tatcttcagt 360
gatcgatgcc aggtttcact ttttcataaa caagattttg cctcagtacc gggatgctgt 420
ntgtctcaca cactcateta tgtcccttcc ctactttgac ctttgtgctg ctccgaaatt 480
actttcnaag aangaagagc tgaacttcac acacatctgg aagtatacgc ggaagtctgg 540
gattctccag ggctcganaa ttctttctgc aaggagagaa gcntttctgg ctccctcaaag 600
nacgnittca tttctncaaa aggnacacaa tnaaaaggg 639

```

<210> 288

<211> 534

<212> DNA

<213> Mouse

<400> 288

```

nagngaagta attgaacgct ttaagaaaga tgaacactta gagaaagctt tcaaattgtt 60
nanntctggg gaatgggcac ggcattattt tctcaacaaa aacaaaatgc aggagaaatt 120
attcaaggaa catgtctttn tttacttgcg gangtntgca actgacagng gntttgaaan 180
acngccttgn aatagatntt cttcagaaca aaatggagcc aagatagttg caacaaaaga 240
gtggaaacga aatgacaaaa tagaatnact ggngggngngn attgccganc tttcagannt 300
tgaggagaac ntgctactta gacacggaga aaacgacttc agtgtcatgt attccacaag 360
gaaaanttgt gctcaactcn ggctcgggtc ngctgcattt ntaantcntg nttgcnagac 420

```

taactgtaag tttgtgtcaa ntggncgana tacagcatgc gnnaaggctc tgaganatat 480
tgaacctggg agggnggaaa tttcttgta ctaaggagat ggctttttng gnga 534

<210> 289
<211> 551
<212> DNA
<213> Mouse

<400> 289
tgctgtgccc tttataacctg tgcccagctg gagaataatt tgtattggtg ggggtgtgtt 60
ccttttagtc aaaggaagaa aatgttagag aaagctagag caaaaaataa aaagcccaaa 120
tccagtgtct gtatttcttc catgccaaac atcactgttg gaactcaggt gtgcttgaga 180
aataaccctc tctaccatgc tggancggtt gccttttcaa ttagtgctgg cattcctaaa 240
gttggtgtct tgatggagtc agtatggaat atgaatgata gctgtagatt tcaacttcgg 300
tctccagaga gcctgaagag catggaaaaa gccagcaaaa ctcttgagac aaagcccgag 360
agtaagcagg aaccagtaaa aacagaaatg ggccctccac catcaccagc atccacctgc 420
agcgacgcgt cctcaattgc cagcagtga tccatgccta caaacgacgt cggtaactc 480
ctggccccga gagaagagga gaaggtgaac gaggagcagt ggcccccttt cgggaagttg 540
ttttntttg a 551

<210> 290
<211> 547
<212> DNA
<213> Mouse

<400> 290
gacatggcag ccctgaaggt tctgccgcca actgtgtatt tgagagtcac tgagaacatc 60
cctcagatca ttgctttcat cgagggcatc attgctcacg gccatgcata ctcgacagct 120
acaggcagcg tctacttcga tctgcacgcc cgaggggaca agtatggcaa gctgggtcaac 180
acggttccca gtgccactgc agagccagca ggtgactctg acaagcggca cagcagngac 240
ttcnccctgt ggaaggcagc caaacctcag gaggtgttct gggcttcgcc gtgggganac 300
ggacggcctg gatggcanat cnantgctct accatggcca ntgaggtttt cggaagccac 360
ctggacatcc acaccggcgg catagacttg gctttccan atcacgaaaa tgaaatcncg 420
cagantgaag tcttcacca gtgtcagcag tggggaaatt acttcctaca ttctggtcac 480
ttgcatgtga aangcccaga aggaaaagat gtccaatgcc taaaaaata ttatcancat 540
taagggg 547

<210> 291
<211> 540
<212> DNA
<213> Mouse

<400> 291
caatctgggc tcgctgcgtc acctcagcct tgccaacaac aaactaaaga acctgccgt 60
taggctcttc caggatgtga acaatctgga gaccctcctg ctgtccaata accagctgg 120

```

gcagatccag cgggcccagt tctcccagtt tagtaatctt aaggaactcc agttgtatgg 180
caacaatctg gaatacatcc ccgaaggagt ctttgaccac ctggtaggtc tcaccaaact 240
caacctgggc aacaacggct tcacccacct atcccctagg gtctttcagc atctgggcaa 300
cctccaggtg cttcggctat atgagaacag gctttcagac atccccatgg ggacttttga 360
tgcacttggc aacctccagg agctgggcct ncaagagacc agattggcnc cctcttcctt 420
ggcttgttcc acantaaccg taacttnacg agnctgtatt attccagna ccacatttca 480
natttgcccc tggcatcttc atggnagctg nccccantta acaggctnan aatttttggg 540

```

<210> 292

<211> 577

<212> DNA

<213> Mouse

<400> 292

```

gnggtcatta ggaacaata atagcatctt tnnntcgag ctcttgctgt ttcctaataga 60
ccaggagtgc gtggagcagc aagagctcga ctccaaagat gcnattaanc nnnntcagnt 120
cgnagnnnnn aanaatggnn tcnccancnt gtcnccnntc tgtttgaaaa tgggaactta 180
cttaagaatg gctgacctnc cctcatcaga actatttttg tggaaaactc tctgctcaag 240
ggaagatgcc ttggattgaa tataataatg aaaaagtgtc tggnacagaa ttcataatcg 300
actttctgga agagaaactt ggagtgaact taaataaaaag cctcggcccc catgaaagag 360
ccgtctcaag agccgtgacc aagatgggtg aagagcactt ctactggacg ttagcttatt 420
gccagtgggt ggataatctc aatgagaccc ggaagatgct gtcacttagt ggcggcggtg 480
ccttcagtaa cctgntcagg tgggtcntgt gnccacataa ccaaaaggaa ttgtgaagcg 540
ggagatgcac gggccacggc antggnccgt tagntgg 577

```

<210> 293

<211> 565

<212> DNA

<213> Mouse

<400> 293

```

ggcagagaag gacatgcagg tcgtagaaga actcttcagc tgtggagacg tgaacgcca 60
ggccagtcag gcgggacaga cggccctcat gctagctgtc agtcacgggc ggatagacat 120
ggtgaagggc ctgctggcct gtggagctga tgtcaatac caggacgacg agggctccac 180
cgccctgatg tgtgccagt aacacgggca tgtggagatt gtgaagctgc tgctggccca 240
gccaggctgc aatggccacc tggagacaa tgatggcagc accgctctct ccatagccct 300
ggaagctgga cacaaggaca ttgccgttac ntctgtacgt ncacctcaan ttctcgaaag 360
cccagtcccc gaggttggc agaaagacat ctctgggtcc cactcacga gggtcttttg 420
actgattatg taagcatnnc ccttgtgtgt accaccacga agctgctagt tattctgtt 480
ggggtgacag atactgaatg taaatggncc acaccaagct gaccagcaga cagaagagtt 540
aaggagcggc tnaaggctga tnctn 565

```

<210> 294

<211> 559

<212> DNA

<213> Mouse

<400> 294

cngaaagaag aactccctga aggactgtgt ggcagtggct ggccccctgg gggtcacaca 60
 cttccttatt ttgacccaaa cagataacag tgtatacttg aagctgatgc ggctcccagg 120
 aggccccact ttgacgttcc agatcagcaa gtataactg atacgggacg tggctctctc 180
 cctgcgccga caccggatgc acgagcagca gtttaaccac cctccccctcc tgggtgctcaa 240
 cagcttcggc ccccagggca tgcacatcaa gctcatggnc accatgttcc agaacctgtt 300
 cccgtccatc aacgtgcaca cggatgaacct gaacancatt aagcgtgcc tccccattaa 360
 ctacaacctt gantnccaag agctggantt ccgncantac agcgtcaaag tggttcccgt 420
 tggtgcaagc ngcggcatta agaagctctt acaggggnag ttcctaaana tgagccgact 480
 ncaggnccatc agttgggctg ntggccacgg gtttggggta tcagacantn aggttggagc 540
 ncgatggaga aaacaacac 559

<210> 295

<211> 585

<212> DNA

<213> Mouse

<400> 295

cggagactta ttgtcaataa gaatgctggc gagaccctcc tgcagcgggc tgcccggcta 60
 ggctatgagg aagtggcctt atattgcctg gagaacaagg tctgtgatgt caatcatcga 120
 gacaatgctg gctactgtgc tctgcatgaa gcttgcgcca ggggatggct caacatcgtg 180
 cgccacctcc ttgaatatgg cgctgatgtc aactgcagtg cccaggatgg aaccaggcct 240
 ctgcatgatg ctgtgggaga tgaccactta gaaattgtac gattgcttct ttcctatggg 300
 gctgacctta ctttggccac atactcaggg agaaccatca tgaaaatgac ccacagtga 360
 cttatggaga agtttttaac agactattta aatgacctgc agggtcgagc tgaagatgac 420
 accagcggcg cttgggagtt ctatggcagc tctgtgtgtg aaaccagatn acgaaagtng 480
 gtacgatgtt ttgggctaac cccccaggga ccagaagacc cagatgaggg agaggtacct 540
 atagegnntt gtttngntt gagttgctga aagcncccn cctgc 585

<210> 296

<211> 585

<212> DNA

<213> Mouse

<400> 296

gcaagtcaga ggccaaaatg gtgtgttct ttaacaatct caccagcttt gaggagcagt 60
 taaagcgacg gggagagttc gttgaggaaa ttcagaaaca cctgtgtcag ctgcagcaag 120
 agaaaccatt taaagtgaag tttgaggtgc agagctcaga ggagcccaac tccaggctctc 180
 tgagcttcaa gctgagctcc cccgagctcc agcaggaggt ggaatttgat gtgcagccag 240
 cctatgatgt cctatatgaa ctgagaaaca acacgtatgc tgaaccccaa ttctacaaca 300
 aagtctacgc ccaactcatc catgagtgc ccacctgga gaaggagggc gatttctcca 360
 tctgcttcac cgacctccat cagaacttca tgaggtatcg tgcgcccagg ctctggaacc 420
 tcatccgtct ggtcaagcac tggatatcaac tgtgttaagga gnagctgagg gagccgctgc 480
 ccccaaagta cgccctggag ctgctccact gtctatggaa tgggaacatt cggatnaaaa 540

atccnaggna aaaggtaacc ccagcccagg ancttccggn ccttn

585

<210> 297

<211> 578

<212> DNA

<213> Mouse

<400> 297

tagctaatag atcatttagt ggataatctg tcaactgaca tccagttaca gccttttcat 60
 tttgtcact ttaggtatct tggactgagc agtggggcct ttactgtatt ttccctgata 120
 agtacacaca atagccactc cctaccacct ctttcttgaa aagtgaaatc ttttaagcag 180
 ggaagtgagc atccgtttac tgcagctgtg atttttacag taacctttct atattgagcc 240
 tatgggggat gaagatttgc aaaatcttgt ttgttttagag ccaataaaaag ttttaactgat 300
 ggtcaatact ggttttagaaa ttttaggtct tctaaacct agctttttca ggtctgaaat 360
 aattttattg ccaaaattat gacaggaagc ctccctatta aattgttaca ctttttcacg 420
 gttgtgtgaa agtttgaaact aatctaaaag tatgatcgta attgtaccat attagcgtac 480
 agcaaaacga ggcagccact tgtgagcagt aattttccct gggagcagca ggggnctagt 540
 gggacccaaa cctggccttc ctgttgggtt cagcatte 578

<210> 298

<211> 527

<212> DNA

<213> Mouse

<400> 298

aatgaagggc aagagcgtgg tcacagcccc catcatcaaa ggcaaccttg gagccaatct 60
 cagtgggctg ggtcgcaaca tcatcctcac gaccatgcc aagcgtacca aactcattgc 120
 tggcaataag ccagtgaagt tcctcactgc tcagcagttg cagcagcttc agcaacaagg 180
 tcaggttaca caggtgcgca tccagaccgt cccggcatcc catctgcaac agggcacggc 240
 ttctggtctc tccaaagcag tgtccactgt tgttgtgacc acagctccat ctctaaaca 300
 agcacctgag cagcantgac cgaggagagg cggcttctct aagagaccag gcccggtgga 360
 tctcggccga nagaaagggg gcagcaggag gctgcatcgt tcttctgagc tgtcctgctt 420
 gaggcanggt ggtggagagt gatggcaact gcggcctagg ttctgctgcc acgctccaga 480
 gtgaagctct gaaaggggtc cctctttaag gctccagggt aatnttt 527

<210> 299

<211> 533

<212> DNA

<213> Mouse

<400> 299

gacaagtgcc cacactgcag aggaaaccac aagcagcaac cacagcagcc tagacctgac 60
 cagcacatgt gtctcgtcct cggnaccttc caagtctctc ctaatcatga acccgcatgc 120
 ctctaccaat ggacagctct cgggtccacac tcccaaaaag gaaagcttgt cccacgagga 180
 gcacccccac agccancctc tctatggaca tggcgtatgc aagtggccag gctntgaggc 240

ggnttgtgac gacttcccag ncttttctaaa acatctnaac agtgagcnnng cgcngganga 300
 tagaagcaca gcncnatgta gngtacaaat gcaggttnta cagcagtnag ancncagct 360
 tgcaaaagac aaagagcgcc tgcaagccat gatgncccan ctgcatgnna agtctacaga 420
 acccaaagct ggncctcagg ccctgaatct ggtatcaagt gtningccnct ccaagtntgc 480
 ctcagaggct ttntcnanag aagttacctn atacttccaa naaaccccca gcg 533

<210> 300
 <211> 564
 <212> DNA
 <213> Mouse

<400> 300
 aaaaaacatt cagtgtgttt cctgtaacaa atccttcaag aaactctggt cccttcatga 60
 acatatcaag attgtccatg gatatgcaga aaaaaaattt gcctgtgaaa ttgcgagaa 120
 gaagttctat accatggctc atgtacgaaa acacatggtt gcacacacaa aagacatgcc 180
 atttacatgt gagacctgtg gaaagtcttt caagcgcagt atgtcactca aggtgcactc 240
 cttgcagcat tctggagaga aacccttcag atgtgagaac tgcgatgaga ggttccagta 300
 caagtaccag ctccgctccc acatgagcat ccacattggg cacaagcagt tcatgtgcc 360
 gtggtgtggc aaggacttca acatgaagca gtacttcgac gagcacatga agacgcacac 420
 tggagagaag cctttcatct gtgaaatctg cggcaaaagc ttcaccagcc ganccaacca 480
 tggagaggca ccgcagaact cacacagggc gagaagccct acccctgcga tgtntgcggg 540
 tcaanggggt ccgctttttc caaa 564

<210> 301
 <211> 564
 <212> DNA
 <213> Mouse

<400> 301
 gagaaagagg agggccggct ganagccaag gaggccaagc agaccngca gcatttcctg 60
 gaacagcatg aacgcatgac ctccaccacc cgctaccggc gggcanaaca gacttttggg 120
 gacntggagg tctgggctgt ggtccctgag ananatanaa aggaagttaa tgatgatgtc 180
 ctcttcttcc tggccaagaa gganaaggaa caagccaagc agctccggcg tcggaatatc 240
 caggccctga agagcatccn ggatgggatt agcagtgtca acttccaaac cacttgggtc 300
 caggcccagc agtacctcat ggataacccc agctttgctc aggaccagna nctgcagnac 360
 atggacaagg aagatgcact tatctgcttt gaggagcata tccgggcttt ggagngacag 420
 gagganggat nanccaaaaa cggggcccg cttcggggaa ncgggagaca gcagccggaa 480
 ngaaatcggg agggnccttn aagagcttct tggacgagct gcatnaanac atgggannct 540
 ngaacttcca tggtcnacct tgga 564

<210> 302
 <211> 524
 <212> DNA
 <213> Mouse

<400> 302

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agtgttttgc gaacgccaaag cacatagcca tcatctcggg ggctggcggt agtgccgaga 60
gtgggggttcc cacttttcaga ggcgctggag gttactggag aaaatggcag gctcaggacc 120
tggcaacccc tcangccttt gctcgaaacc catcacaggt gtgggagttt taccactacc 180
ggaggggaggt catgcccaga aagaacccaa ccccgggcac ctggccattn cccagtgtga 240
agcccggcctt cgtgaccagg gcagacgggt tgtggtcatc acccagaaca ttgacgagtt 300
gcatcgcaag gctggcacca agaaccttct ggaaatccac ggaaccttat ttaaaactcg 360
gtgtacctcg tgtggcactg ttgccgagaa ctataggagt ccatctgcc cagctttagc 420
aggaaaaggg gcccancananc cagaggtcaa gacgccagaa tcccagtcg acaaaactttc 480
cccggttcga ngaaggcagg attcggaggc tttctncaa ctca 524

```

<210> 303

<211> 514

<212> DNA

<213> Mouse

<400> 303

```

angacgacta tctccagccg accactgcct cttttacggg ctttctggcg gcagagaatg 60
gtcaagggtga gctcagcccc tatgaaggga atctctgtgg tttagcgacc tttatagagg 120
ccggtgcaga agaaagcgtg aacgctgacc tgggtgacaa acagtgggag cagaagcaga 180
tcgatggtct tgatggcgaa tttcccttca ccatgtggga cgnatgtaat gnccnagnng 240
atcccatagn tgaagaacag gctggtnagt cancccccga ttattcngag tatangacnt 300
ganagaaaatt tcctcctgna ggaatacctg gcnttgatct ttctgnntcc aaacaactgg 360
cagantttac tagcatgata nccaaaaagc caaaaggaga ctttccaaga cctatagcat 420
gtcaccataa nggctgcgag gangangtgc aaagnnantt tctgctntga gaaagccttg 480
gccatccttg gggcnaggag tgcanttctg ttaa 514

```

<210> 304

<211> 520

<212> DNA

<213> Mouse

<400> 304

```

caacagtcgg agaccccacc gccctcatatc ttgcgcctct tcaattccct ctcttgggtct 60
gcctgctccg caagttcatc cagaaaagcc actggcggtga gcacatgtac attcacacgg 120
gcaaaccctt caagtgcagc acctgtgaca agagcttctg tagggccaac caggccgcac 180
gccacgtgtg cctcaaccag agcattgaca cctacacatc ggtggacaag cagacactgg 240
agctctgcac gttcgaggaa ggcagccaga tggacaatat gctgggtgcag gccacaagc 300
cctacaagtg caacctgtgt gacaagacgt tctccacacc caatgaggtg gtcaaacact 360
cctgccagaa ccagaactca gacgtgttcg cctgggacga gggcggtca gtctgtcttg 420
gcagtgggga ctcagaagta actgaacctg accaccctgt gttagcgtcc atcaaaaagg 480
aacaggaaac tgtgttacta gactgaatgt tacttgtgtt 520

```

<210> 305

<211> 513

<212> DNA

<213> Mouse

<400> 305

```

agaaaatgga aagtgccaga tgagatttta gcattgcagg gcaaaaggag gaaatgcatt 60
attggtatgt gtggagatgg catagaaaga gcaagaaaca gtccccaaga agccagagac 120
cagaagccca gggttgcttc aaggaagtat cgtaacatca tgcccaagcc tgctcttgct 180
ctgtctgctt tggcaccctt ggcgtctcat acggctgtgc tgtctcaggc tcccagcagc 240
ctaggtcaag atgttctgaa taatgccctg ccttcaaaat gtcttggtgc caagcaaagt 300
gacagctcta cccctaagcc cagctctgta ctccgaaatg gattctctgg cattaaaaag 360
ccctggcaca tgtgtccagt ctgcaactac cactttcaat tcaaacacca ccttctagac 420
cacatgaata cacacaccaa cagacggcct tatagttgcg ggatctgtcg caagacctat 480
gtgcgccccg gcagcctgag tgcacatatg aaa 513

```

<210> 306

<211> 572

<212> DNA

<213> Mouse

<400> 306

```

gaagcgagca acagcatcca gtttgtcatc aagagaccgg aactgctcac tgacgggtgc 60
aaagaacctg ttctggacac tcaagagagg gactcctggg accgtcttgt ggacgagacc 120
ccgaagagac agggccttca agaaaattac aacaccagac tctcgggat cgacatcgcc 180
aacacgctta gggaacaagt ccaagacctg tttaacaaga aatacgggtga agctctgggc 240
atcaaatacc cagtgcaggt gccctacaag agaatacaaaa gcaaccagg ctcggtaatc 300
attgaaggcc tccccccggg gancctatc cgcaaaccct gcanctttgg ctcccagaac 360
ctggaaagga ttctctctgt ggctgacaag atcaagttca cggtcaccag gccattccaa 420
ggnccttatcc caaagcctga tgaggatgat gccaacagac tgggggagaa ggtgatcctc 480
cgagagcagg tgaaggagct cttcaatgag aaatacgggtg aagcctgggg atgaatcggc 540
tgtgctggtc cttaaaaact gatcgggaca gc 572

```

<210> 307

<211> 569

<212> DNA

<213> Mouse

<400> 307

```

caaaagaaga actggagtgt atgtcagagg gagatgttga ggattttcca accttcggcg 60
actccagag cgactatgac acgggtgttc accctttcta cgctcactgg cagagtttct 120
gcacacaaaa gaatttttcc tggaaaggaag agtatgatac ccggcaagcc tcgaaccgct 180
gggaaaaacg agccatggaa aaagaaaaca aaaaaattcg aganagagca aggaaagaga 240
aaaatgagct ggcgaccag ttcatTTTTt tctttccttg ctctggtgag cactggtag 300
ccttcattcg taaacgagat aagagagtgc agggccatcg gaagcttgtg gaggagcaga 360
acgcagaaga aggcgaggaa ggcagaggag atgaggaggc agcagaagct gaagcaagcc 420
aaactggcag agcagtacag agagcagagc tggatgacca tggccnattt nngngaagg 480
gcttccagga gnatggaagc nagggtagca ggaaggaggt ttggagatgg gntcagattg 540

```

aaaacngagt ggcaagggat cantagncc

569

<210> 308

<211> 536

<212> DNA

<213> Mouse

<400> 308

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gccaatggca acttggacga gcctttccct ccccggccca cggccccact tcctgaggag 60
cttgcccctt cctcagatgc caatgataat gagttacctt cccctgagcc agaggagctc 120
atttgtcccc aaacaactca tcaaactgct gagccactg aagacaataa caacaatgtg 180
gccccagtac cctccacaga acagatccca agtcctgtgg ctgaggctcc ttcagaggag 240
gatcaagtcc ctccagcacc tttttccccc gtcattccatc ctccagcagc atccgcgagc 300
aaacgcacca acctgaagaa gcctaactct gaacggacag ggcacgggct gagagtgcgc 360
ttcaaccccc tagccctgct tctggacgct tctctcgaag gagagtttga tctagtgcag 420
aggatcatct atgaggtgga ggaccctagc aaacccaatg acgaagggga tcancccccct 480
acaacaatgc tgtctgtgct nggcaacacc atatcgtgaa gtttctgctg gacttt 536
```

<210> 309

<211> 534

<212> DNA

<213> Mouse

<400> 309

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cagaaatgaa aatccctgta gatctggaaa aggtcgtccc tggatttgaa gcttgggtctg 60
agaacttcta cactgtgtgg cttcagcaca ctctaactct aagggagggtg ctcgactcac 120
tcaagactta ctggccaatc agagcctcca ggagacctg cgtgtcagaa gagaaggcgg 180
gttttcgggg tgcgggtggtg tcggtttcgc ttccctgggtg agtgcttgaa tggttctgtg 240
tgccgtgctc cgtttccctgc gggttgatgc tgtggattgt gcacaggcaa gctccgaagt 300
tgcgacatgg atgtgttgac ccatgatgat gtgcattgta acttcaactc agaagaatgg 360
gctttgctga atccttcaca aaagagcctc tacaagatg tgatgctgga gacctatagg 420
aacctcaatg ctataggcta caattgggaa gacaataata ttgaagaaca gtgtcaaagt 480
tccagaagaa atggaagggc atgaaaagaa gacttattgg agagaaacgc tcct 534
```

<210> 310

<211> 510

<212> DNA

<213> Mouse

<400> 310

```
ntncgactat gatgcctggg caaaacttga tgtggacagg attctcgacg agcttgacaa 60
agaagacagc acccagcatt ctctgtccca ggagtcagag tcggatgaag atggcattcg 120
tgtggattcc cagaaagctc ttgttctaaa agaaaagggc aataagtact tcaagcaagg 180
aaagtacgat gaagccattg aatgctacac gaaaggcatg gatgctgacc cctacaatcc 240
cgtgctgccca acaaacagag cgtcggctta cttcagactg aaaaagtttg ctgttgctga 300
```

```

gtctgactgt aacttggcca tcgccttgag caggacttac accaaggcgt acgccaggcg 360
agggtgcagct cggtttgctc tgcagaagtt agaggacgcc agaaaagatt atgagaaaagt 420
gttagaactg gagccagata actttgaagc aacaaatgaa ctcaggaaaa ttaatcaggc 480
tttgacgtcc aaggaaaact cgggtcctgg                               510

```

<210> 311
 <211> 551
 <212> DNA
 <213> Mouse

```

<400> 311
ctgtggggcc gagcaatatg acttgaactc tcttaccagc tttcaaaggt gtacggaagc 60
ccanactggg aatgggcctt gtgagtgtga ggtatgctta agatcttcct gttttccaaa 120
tccactagga acacatcaag aggctcacag tggaaaaaca ccctatcaat acaaggagtg 180
tggaaagaac tctgtttgtg cacatggagg aagccccact atgggaaagt tttatgaatg 240
taatatatgt ggtaaagcct tgagctcctc tactgccctt caaagacatg aactaattca 300
caccgaaaga ttctacgaat gcacgtattg tggtaaagct tttagatata ccaaatacct 360
tcgattacat gaaagaattc atactggaga gaaaccctat gaatgtaaac aatgtgggaa 420
agcttttagat ttcttggtgn cctggccatt acatgaaaaa attcacactg gagaaaaacc 480
ctataagtgt aaacagtgtg ggaaaagcct tagatttcct gggttcctgc cattacatga 540
aaaaattacc c                               551

```

<210> 312
 <211> 572
 <212> DNA
 <213> Mouse

```

<400> 312
ccctgtagtc cagaactggg gaggccagga gagccgttac tcaactccatg gctctcagac 60
cgcgttcctc tttggccttc cttccagccg agccgtcacc ataagtaaata caagtccctt 120
cctcccagtc acacggctga gcgcagacgg cttgttttaa aaagatgatg aacatgacag 180
tattttgttt tgctttgatt tgggggggaa gggttcatct tgcttttgga gggtgttttg 240
gggaaaaaac agtttatata aactgatttt tgtagttttg gtatttaaag caaaaacaaa 300
caaaaaacaa accccttttt ggtacctgca ctgcatccct cgggtggggc agtgcctact 360
ttggaagatg ctgcagcctg cgaggggatc tgctggggct tccccttcgc cacacagaag 420
cctgcttagt gctttctgca ccagacaacc tgttgaggcg tataacctga tctgtacatt 480
tttttaagtg tgcagggcag cctggacaca gcttagcggt ctacgtgtat agttctccat 540
gctcactaac tctccttctc ngggaagcag at                               572

```

<210> 313
 <211> 537
 <212> DNA
 <213> Mouse

<400> 313

```

gtacagcacc tggctcgcta tgtggagcag tatgtggggt ctgagggtgc atccagctca 60
tctactgaag gcttcctgct gaagccggtg ttccctgcaga ggaacctgaa gaagttccgg 120
cgttggcagt gtgagcaggt acgtgccatg cgcggtgagg ctaagagctc ctggaagcgg 180
ctcatgggcg tggagagcgc ttgtgatgtg gactgccggt tccgcttggg cacacacaag 240
atggtgttca tcgtcaattc cgaggactac atgtaccgcc gtgggacact atgccgtgcc 300
aagcaggtgc agcccctggt gttgttgccg caccaccggc acttcgagga gtggcatggt 360
cgctggctgg aggacaatgt aactgtggcg gcggcagggc tgggtgcagga ctggctgatg 420
ggtgaggaag aggaggacat ggtaccctgc aagacgcttt gcgagactgc gcatgttcac 480
gggctgccgg tgactcgcta ccgagtgcag tacagccgcc gccctgcttc accctga 537

```

<210> 314

<211> 546

<212> DNA

<213> Mouse

<400> 314

```

cggaacantg agtcggtgac cccaatcca cggccccac ttgaggacta ttccctccac 60
atcattgacc ttcacactgg ccgtttgtgt gacacacgca cattcaagtg tgacaaagtg 120
gtcttgtcgc acaatcaagg gctctacttg tataaaaaaca tcctggccat attgtctgtg 180
cagcagcaga cgattcatgt cttccaggtg acccctgaag gcacctttat cgacgttcga 240
accatcgccc gcttctgcta tgaggatgac ctgctcactg tgtctgccgn tttccctgag 300
gtgcagcggg acagccagac aggcattggc aaccctttca gggacccttt catcaactcc 360
ttgaagcacc gcttctgtgt ttacctctgg cgccgggcag agcaggatgg cagtgccatg 420
gcgaagaggg ggttcttcca gtactttgac cagctgcgcc aantgcgcat gtggaagatg 480
cagctcctgg acgagaacca tctgttcacg aagtacacca gcgaggacgt agtgaacgct 540
gcgggt 546

```

<210> 315

<211> 519

<212> DNA

<213> Mouse

<400> 315

```

gaaagggtaa ttcggtagaa ggtagaaaa tgcagagagc aaacatgtca ccaatttacc 60
ctttcattct acttcttaag gaagccgtat gaattttaaa atagggaatg tttaaaatgg 120
tccaaatcaa atattgttat aataaattct gactacaatt aaagacaatt cataatatgt 180
gtgtgtgtgt gtatggaatt ttaagaaaca tttctttcaa atcagtttct aacaaattca 240
ggacagttaa gagtagagct ggaatgattc tgaaatctac acttattttg gttaacaatt 300
ttccatgtga ttcttttgta acacaggaca gtacctgctc tcagggtgtg ttacatcacg 360
ttgctctctc acagatggaa gaaatggcag aggtctgaca agaatatccc ttttatgggt 420
ttttctagca agganaacag aataaactta ggaaaatact aatttcccc aaccctttat 480
gtagactgag gatcttgtgt actttgtcaa ncatccagt 519

```

<210> 316

<211> 569

<212> DNA

<213> Mouse

<400> 316

```

cccacatgca gctccacaag ccgacccagg agccttttgt gtgcaagtac tgcaacaagc 60
agttcaccac cctcaacaga ctggaccggc acgagcagat ctgcatgagg tctagccacg 120
tgcccatccc angaggaaac ccaccgttct tggaaaacta cccactatt ggtcaagatg 180
gaacttcatt cagaagcccg gaatcattag ggccagaaaa taggattggc gaactatcca 240
gcgcggggag tgccttgta gacgcggacc acatgggtgaa atttgtgaac gggcagatgc 300
tctacagctg catcgtgtgc aaacgtagtt atgtgacttt gtccagcctc cggcggcatg 360
caaattgtca ctcgtggaga agaacatacc cttgccatta ctgcaacaag gtctttgcgc 420
tggtcgagta caggacgcga catgaatctg gcacactggg gagaggcgg accagtgcac 480
tttctgtctt gaaactttta tgacctacta cataactaaa aaccatcagg aagtctttca 540
tgncatagat tcacagactc tccattcaa 569

```

<210> 317

<211> 571

<212> DNA

<213> Mouse

<400> 317

```

gganaagggc cttagcagaa gctcgcagt ctgcgcaggt agccctgtgc atccagcagt 60
tacagagatc aatagcatgg gaaaaatcaa ttatgaaagt ttactgccag atctgtcgga 120
agggcgacaa tgaagagctg cttctactct gcgacggctg tgacaaaggc tgccacacct 180
actgccacag gcccaagatt acaactatcc ccgatgggga ctggttttgc ccagcttgca 240
tctctaaagc aagcggccag agtataaaaa ttaaaaaaat tcatgtcaa ggaaaaaaga 300
caaattgatc caagaaaacc aagaaaggan acgtcgccgg gggacacaga ggntgaagac 360
tcggcttcca caaagnagct ccctcaagga gangaagcaa agagctcaa aagagggaaa 420
atgggggaaa accactttcc ctcaacctnt nnaaagcggg aaaggcacca cctcccattn 480
agnnaaccca aaaaaagatg nggtcccagg gacctgggct ctctgcagna tgggtcctga 540
cttnaaattg gggaccattg aggnctnccc t 571

```

<210> 318

<211> 577

<212> DNA

<213> Mouse

<400> 318

```

cccagtacct tccaaagggt ttggggcggt ttggcaactg agaaggttgg agccccggac 60
ataaggttcg aagatggcgg ngcgcaaggg ccggattcgc acgtgtgaaa ccggagaacc 120
catggaggct gaaacctgcg ncccaggaa cgaaggcca tcccaggtct accngnccgg 180
caaanngccg ccactgancn agnngagacg agctggnaan ggangaagag gcctacgtgn 240
ngtaccaneg tgcgcaaant ggcgccctt gnntcagnnt tgacatagtt cgagatcacn 300
tggggcnaca accggacaga gntccctctc ngtnnttacc tgtgngcggg aaccaatgc 360
gggatancgc ccagagcaat agnctgggtg ngcnncggga tgcacaaatc ctccaatggg 420
caannaggcc cgtcaancct tccagngggc antnntganc nattnnggga agattgggnt 480

```


tnaaggagga ttaaggagga tcccggaaan cctcaggntg gganattggc caatgggttc 540
cncntaacc ggttgggcaa taaaccnggg gntcngn 577

<210> 319
<211> 544
<212> DNA
<213> Mouse

<400> 319
cttttgggat ccgttcncca agttcaggag ntctgcanac ccagttggg ncttaatctc 60
cccnacctgn gntngctaag gcnacccaan cttggatncc agaggaagac tttcttgttn 120
cttcttctctg gngccanntg aacgtengaa tnctcanagt ngccatcttg cttcngttct 180
gcctttgnag agcttctgag ccnctnaagt ccagccctgg tgtnttgaga agccaaggga 240
atcncagcct cagcnacggc cgtggngggca ggnggggttt agcncagtca aacgctangn 300
nccangnntg tcntgtgatg cgtagnntac ntctccatgg gaaatncctn gactgccaat 360
aaagnanata gtctatgtgt ttcttgggtg gctcangatt tgcctgcnaa ttctgtagca 420
ngtgtncaaa aatccgcnnt ttnaannacg anntntttgn tgcgtttaaa aggggtgaaac 480
aagncntgna nctntgggnat aaccggggac ctcccaaaga ttgagacccc cgggcgtttt 540
ttnt 544

<210> 320
<211> 546
<212> DNA
<213> Mouse

<400> 320
accagagtag gcaacatatt cccaaaagcg ggagagggcc tcagcaaaac tcgcctttcc 60
ctcagaaaatt tccggggaca cctagtgcag aatctgggcc aaggacactg cccaggggtct 120
tgccggagacg tgaaaactcc cgagagccgc aggtgccgcg cggggcatcc tggtagagtc 180
agcagcgcg cgccggaaac cgcagcccg cgccctgga acctcccagg actcactgat 240
gaagtggaa agcgagtgtt ggatgggtgaa gagagagaag acaaaggatc caggtagaaa 300
agtacaagaa gagaaaagtc agaaaaggac aatagggaga aatggctggt tctccggtaa 360
atacattcca gggctctgtt acattccgag atgtggctgt ggacttctcc caggaggagt 420
gggaatgcct ggactctgct cagagggctt tgtacattgg tgtaatgtta gagaattatn 480
gcaacctggt ctctgtgggt attattgtgt gcaangcaga cctggtcccc catctggagc 540
aatct 546

<210> 321
<211> 553
<212> DNA
<213> Mouse

<400> 321
gaaagatgat gancagnant ttattcaaaa atctcagcct gtttctctgt ncctttctaa 60
aagcgcacgg tcaanttcta gaaaaacgac tgnatctcng ggaagcactc atggaggctc 120

```

ttcattatat nttgttggtg tctgnacgtg gaannaactg aaatTTTTaa aatctgcctt 180
gagtnctggn atcatttggtc agctgagctc tacagagnga gtccattttc tanatctgct 240
tctcccttgt tatctggaag tcnacacttt gatattcctc ctaggagaca gctgtacttg 300
accgtgttat caaagggtccg tttattgatg gttagtgcga tggctaaaac cagnggaggt 360
actggttgta gaaaatgatc agggagaant tgtaagagag ttcataagg atactgattc 420
cctaaattta tataagatat gagagnaanc attagtttat cttactcatc tggattatgt 480
anatncggga ataataatgg ctaanaaact tcaaaatcca gtgaatgggt ncgaatgggtc 540
tggaagaatt tta 553

```

<210> 322

<211> 580

<212> DNA

<213> Mouse

<400> 322

```

agatgctagt ccattttgag cgctggagtc atcgatatga tgagtggatt tactgggaca 60
gcaacagggt gcgacccctt gagagacctg cactaaggaa agaagggtta aaggatgagg 120
aagagctctt tgatttttaa gctggagaag aagtactggc tgggttgaca gactgtcgct 180
attaccctgc caagattgaa gcaattaaca aagaaggaa attcacagtt cagttttatg 240
atggcgtaat ccgttggtta aaaagaatgc acattaaagc catgcctgag gatgctaagg 300
ggcaggactg gattgcttta gtcaaagcag ctgctgcagc tgcagcgaaa aataaaacag 360
ggactaaacc tcgagccagt gctaacagca ataaagagaa agagagagtg ggggaaaatg 420
gttcaattac cttcaaagaa ggcagagact tcaacgtgca tagtcacagn ggggattgag 480
aagaaggngg gactacccac atccagtggg aacatttgta gggcttccca tagacaaccg 540
ttccanagan cgtctttcca cagncagngg agcacattta 580

```

<210> 323

<211> 538

<212> DNA

<213> Mouse

<400> 323

```

nttgccctggc atccctgtgg ctaagnccgc ttactccnnc cacgtgtctg nggatggcca 60
gantcagcct gtgcccttcc cgtctgatgc tctggtaggc acaggcatcc ctgcceaagc 120
aaggcagcta cacacgctgg ccacaggtna ngnggtntnt gccgtnacca tcagcagctc 180
cacacagcac gtgtacacag gcggnaaagg atgcatgaag gtntaggncn tnggccancc 240
gggtancaaag acccctgtgg nacagctgga ttgcctgaac cgaganaact acatccgntc 300
ctgcaagtgc ngcncgatgg gcagaacctg attntagntg gcgagggcca gtaccctgtc 360
cattttggat ctngcagnac ccacancang gatcnacna gagctgactt cgtntgcccc 420
gggcctgnta tgccttggnn gtnagttggg anggcaaagn nacttcnact gtggagcgac 480
tngtaacatt gtgntctng ggaactncnn aaacanggcc atgggnanac nctttcca 538

```

<210> 324

<211> 578

<212> DNA

<213> Mouse

<400> 324

```

agaatttctg agtcactata aggnncacna cagnatagat tatgtgtttg tgtcagaaaa 60
aactaaaacc tcaattaaaa ctgaaggcga ttttaaaata gtaganacca gtantttact 120
aagctgtggc tgtcatnana gttacatgtg taaaatcaac agaaaggaat actatgaccg 180
atgccttcca gtctgtctgg agaaaggtag gctgtgggtt cgctgcagct cgtgctcagc 240
cacagnacag aatgtgaccg acattaacac tcacgtctgc caagtgcaca nnaaagngaa 300
nagtgaggag gngcagcagt atgtgntcaa gtgtggcatc tgnaccaagg cattccagan 360
cacggagagc gctcagcagc acttccacag gaagcacgcg gccctccaga aaccaccgcg 420
gaccccgagg ggagccaaca ggaagcagnn catgccatct ggctgctagt gcctcacatg 480
ctgagaaaaa cctggaaatc aagctaactc tcagaaaaca ttcagacgtg gaaaaaggaa 540
gctgagccat gatggtacgn tgncaaaaac atagaggg 578

```

<210> 325

<211> 570

<212> DNA

<213> Mouse

<400> 325

```

gcaggagaag gatttctgcc cgctggaccg caagcggctt catttcaagc tgtgtaagaa 60
gtctagcatc ctggtccaca agctgctgga caaactgctg gtctgtgtc cgttctctcc 120
cgtgtgccaa gatgtgatgc agcgnrtgtga cctagaggca catcttaaaa acagggtgtcc 180
tggagcctct caccggagag tcgatctaga gagaaggaaa acgagtcaaa ctcaaacaca 240
gattgagggg gaaactggat ctactgtcat agatcctcca ggcaccttgc ccccagaaac 300
ggactgctcg ggcaccgtgc ctggcgagag gaacttgaca ccagcatctc ttctgtgtg 360
gaccgaggag cctggcctgg acaaccccg cttcgaggag agcgtgagc ctgactctgt 420
acagcagccg cttagtttac cagaaggaga gatcaccacc attgagatcc accgctctaa 480
nccgtacatc cagttaggaa tcagcatcgt gggcngcaac gagacaccac tgatcaacat 540
cgtcattcag gaagtttacc ggggacgggg 570

```

<210> 326

<211> 554

<212> DNA

<213> Mouse

<400> 326

```

caaacatttg gctagagtat ggccagtact cagttggtgg cattggtcag aaaggtggcc 60
ttgagaagggt tcgctctgtc tttgaaagag ccctgtctc tgttgacctg cacatgacga 120
aaggcctggc catctgggag gcctaccgan agtttgaaag cgccatcgtg gaggctgtc 180
ggctggagaa agtgcacagt ctcttccggc gacactngcg atccactgt acgagatgga 240
ggccaccttt gcagagtatg aagaatggtc agaggagccc atgccgngt ctgtacttca 300
gngntatcag aaagcgctgg ggcagctana gaagtacaag ccttacgang aagcgctgct 360
gcaggcagan gnccctcggc nggcggaata ccaagcttac atcganttcg agatgaaaaat 420
cggggatctg gccgtattca gttgatcttt gagcgttcct ggtggagaac ttgcctggnt 480
ccagncttat ggatcgccac agtngtacct agatccacag ctgaaagtta agggcttggt 540

```

ttatctctac angg

554

<210> 327

<211> 564

<212> DNA

<213> Mouse

<400> 327

```

gatgtatgtg gcaaggcctt cgaatatcca tcaagacttt caaaacataa gaaaattcat 60
acaagagaga aaccataaaa gtgtgaagta ggtggcaatg ccatccatta tccatcaata 120
ctttcttttt tttttaaatt ttttttttta tnaggnattt tccncattta cattttcaat 180
gctatcccaa aagtccccc taccaccccc ccatcaacac tttcaaactg tacgaaaatt 240
catacaagaa agaaaccata cagttgtgaa atgtgtggca aagcctttga ttatccatca 300
ggnccttaga aacataagaa agttcaaaca gaagngaata cctacaagtg tgaagtatgt 360
ggcaaggctt tcaattatca gtggngnntt tacgaaacat aancaatcca tgcaagangg 420
gaggtctaca aatatgaagt acgtgggctg ancttctatt gtccataagt actttctgna 480
aagggaatcc acacaggtga gaaacctaaa cttgggatgt atcaggtaaa tcctttgggg 540
tttccggatc cttttcctta attg- 564

```

<210> 328

<211> 592

<212> DNA

<213> Mouse

<400> 328

```

cgaccactgg aagcaggaaa agcaccgtgg aggctgggat agctgggtgag gagaaaagca 60
gagctactga gacaaaacga attatcatca agatggagcc agaagatata cctgcagatg 120
acatgaaaga cttcaacatt attaaagtta ctgagaaaga ctgcaacgag tccaccgaca 180
atgatgaatt agaagatgaa cccgaggagc cattttatag atactatgtt gaggaagatg 240
tcggcattaa aaaaagtggt agggaaaacc taaaacctcg tatgtccatc agcgtggatg 300
agagagggtg cttagagaac atgagacccc cgantaacac cagccccata caagaggatg 360
caggagaatg catcttgtga gcngtgtgga ctcaacaata cngagggagg gacctgtcg 420
tctcattacn tggggcnagc acatttnaaa tatctgtgca tgtngnaaat gtggacanta 480
cttgtcaagg gcagacagct tcaggggaca tgctcagggg tgcggggacc cccaggatn 540
tggaacaatgc aatggggcna aggggaacnc ngacgaggaa attggacatt gg 592

```

<210> 329

<211> 494

<212> DNA

<213> Mouse

<400> 329

```

cactactgta agacatgtca acgactggtg tgccaactct gcagagtacg gcgtaccacac 60
agtgggcaca agatcacacc agtgctcagt gcctaccagg cctcaagga taagctaaca 120
aagagcctgg catatctctt gggaaaccag gacactgtgc agaccagat ttgtgagctg 180

```

```

gaagagacca tcaggcacac tgagggtgagt ggtcagcaag caaaagagga ggtgtcccag 240
ctggttcggg gactaggggc tgtgctggaa gagaagcggg cctcactgct tcaggccatt 300
gaagaatgcc agcaagagcg cttatcccgg ctccagcgcc agatccatga acaccagagc 360
ctgctggatg gctcgggtct ggtgggttat gcgcaggaag tccttaagga aacagaccag 420
ccttgttttg tacaagcagc caaaccagct gcataacagg attgcccag cactgagggn 480
cctccaagac attc 494

```

<210> 330

<211> 581

<212> DNA

<213> Mouse

<400> 330

```

caggagggcc actctctcct gggcccccag ggccacctgg ccagccagga tttccaggac 60
tganggggga gtctccatcc atggacacct tacgncgcct cattcaggaa gagcttggga 120
agcagctaga agctaaactt gcctacctcc tagcccagat gcctccagca cacatgaagt 180
cctctcaagg cagaccggga cctcctggac cccctggaaa agatgggctg ccaggctcga 240
caggcccat gggtagcca ggccgtcctg gccaaagggtg tctggaagga ccctctggac 300
caatggggcc caaagggtgaa agaggagcca aaggtagccc tggcacacct ggagttggtc 360
tccgaggaga gatgggtcct cctggaatac caggccaanc tggggaacct ggatacgcta 420
aagatggact tccaggaagc cctggtcctc aaggagagac agngactagc tggacattcc 480
ttgggcctcc ttggtcntcc ngggcccaac ttgggctgtg ttgaaccctt cccagtggt 540
ngntnanttn gncaagnctt ttntgcccgg gccaaagta t 581

```

<210> 331

<211> 562

<212> DNA

<213> Mouse

<400> 331

```

ctgtacattg cagaaatcag tattatttta aaagatgttc tcaaatgatt gtttactatc 60
ttacatttct ggatgttcta ggggtgcctgc cattgagcat tgccttatgt ggcgttccat 120
gagttgattt tgaagccgac taggatgang aagttgggat tacatctact gataatatac 180
agagggttg ccatttgcata tctgttgaca ctgccgatgt gcagggtgact catttaatcc 240
actgccttcc tttcttgnaa naaagggaac gggancagcc tctcaatgtg tttgtgcana 300
caggctgcag tgactaagct tgcacangac aaagcccaac cttcttgcca ncacatcaaa 360
gggcatcgtg gcgatgcgca acatctcagt gatgccagat tcgtgtgcta tcagcngnac 420
ttganattct gtgatcacca cagatgggtt gtgtgtgttc tttcatagct gagaagaata 480
tcagcagttc angactgaca cntgagtacg ngagtgtctt gagagcangn tcaanggaag 540
agtcttcgtc gcggggtgan at 562

```

<210> 332

<211> 587

<212> DNA

<213> Mouse

<400> 332

```

aataactcac tgagacccta aaacaatggg ctgacgctta ttcttttgcc cgcgatcccn 60
gcaaattccc cntnnnnnan annngaaata atnnntctgc ttnaatcgta gantatgctc 120
tttcacccct tcnanngcnt ntgcntnnan tannccantn tangctcgtn tngnaattnc 180
ggctgnnngg gngtgnagg nccagggntn gtntctctgc ctcccttana ggcnnntnctn 240
gnnccangnc cgnntcntg ttacacttca nnggatnttc nccactngnt gtcngacaga 300
gttgggctcng gtgncncnc caanactggg ggnnaggatn ncnnngtnag gaggggggng 360
anangaanca tgnnnngcnt tgtcnaaaaa anggcncctgt aggnancnng gnttnccccc 420
ngncaaggag tngcctcccn ggggctggag ngggngggnn nctgggntng cannagttgn 480
nnntgnnngc atccttangn taaagggggg ntgtcagagg nnnnatnctg ggncceggng 540
annttgaggg ttttcagcnn nnggggtnac acaggggggn ngnannt 587

```

<210> 333

<211> 563

<212> DNA

<213> Mouse

<400> 333

```

gaactgttcc aaagcacacc agacttgcaa agctcttgat tccggacagc ttaccttgat 60
tcctgacatt gtgcagtggc tcagccagaa cctgtgagtc acaggtagct gctgtgttac 120
acaacatcta acaacgtcta gccttctgcg atttctgggt cagggtcatt attagtgcatt 180
ttgacagatt tggcagagtg gcttacagtg gaatgggcct gctccgactt ctgggtgctct 240
gcacctgggt gcattgctga tggcccgctc tccccagcc ccacccctgc cacaacgccc 300
cctctcacct ctgcattctc tgggctgtaa cgactctgaa gtgctggcag ttgcaggatt 360
tgccctgcag aacatcaaca gggacccaaa aggatggcta tatgttgagc ttaacagagt 420
gcatgatgtt cggngcact accaggaaga catgggatct ctgttccacc tcacattgga 480
tgtcttaga gaatngactg ccaagtggct cagcagggaa ggnccagaan gggctngcaa 540
acnggggatt ntcttatggg tcg 563

```

<210> 334

<211> 539

<212> DNA

<213> Mouse

<400> 334

```

tggagctctc gcggcggatc tgtctcgtgc gactgtggct gctgctccta tcgttcttac 60
tgggcttcag cgcgggatct gccatcgact ggcgggaacc cgaaggcaag gaagtatggg 120
attatgtgac tgtccgaaag gatgccaca tggtctgggt gctctattat gccaccaacc 180
cttgcaagaa cttttcagag ctgcccctgg tcattgtggc tcaggggtgg ccgggtgggt 240
ctagcactgg atttggaac tttgaagaaa tcggccctct tgacacccaa ctcaagcctc 300
gaaatactac ctggctgcag tgggccagtc tcctgtttgt ggataatccc gtgggcacgg 360
gcttcagcta tgtcaacaca acagatgcct acgcaaagga cctggacacg gtggcttccg 420
acatgatggg tctcctgaaa tccttctttg attgccataa agaattccag acggttccat 480
tctacatttt ctcaagaatcc tacggaggaa agatggctgc tggcatcagt gtagaactt 539

```

<210> 335
 <211> 551
 <212> DNA
 <213> Mouse

<400> 335
 gccctgcc aatgccctgc agtggangat tcaagctgng ctggagagtn gcaagagaca 60
 cctctgcggg agaatgccct ggaccatggg ctcaaacaga aagctgcaat atgggatctt 120
 gcccaggctg ccgatatccc cctgggtcaat agtgcangat ggacactntg tccccatctn 180
 ctcttgctgc tgtggcctnn ccagtnncaa tgcctcanng gancnggncc ccanacagg 240
 ggnccagcng gactnnnnna attngncnag gnttcantgg naccttnntt tnncaacccc 300
 tnnnttgta anccttgga cntgggcaag ntggaaattaa ttgttcagtt anctgtggna 360
 agggcncnn ggggcgcaac aaggntttnt taaggaaaat cctgatcgng aaccangncc 420
 agggttntnn ancctgcagc aatggcaaga ggtntaacc tgnaaancct tgnccctggg 480
 gnccacttg ggnaggggg cncaattaac cttgggncaa caattttgcc cgancctntg 540
 tccccaaagt g 551

<210> 336
 <211> 569
 <212> DNA
 <213> Mouse

<400> 336
 cagcctgca gatggagtgc atggagtaca aagcgggcaa gcgagtgatt ggggaggacg 60
 gtacagaggg ctacagtgc ctgttccgag agaacgccat gctgcagaag gagaatgggg 120
 cgctgcggct ccgagtgaag gccatgcagg aagccattga tgccatcaac aaccgggtca 180
 cacaactcat gagccaggag gccaacctgc ttctggccaa ggctgggtgat ggcaatgagg 240
 ccattggtgc tctgatccag aactacatcc gggagatcga ggagctgcga acaaagctcc 300
 tggagagtga ggctatgaat gagtccctcc gcagaagcct ctcccgggct tccgctcgga 360
 atccctactc cctgggagca tctccagcag gtccagcctt tgggggcagc cccgccacct 420
 ccatggaaga tgcttctgaa gtgatccgca aagctaagca agacctggag cngctgaaaa 480
 agaaggaggt caggcaagcg gaggaagagc ccagagaaaag aagcggtcca ggaaganggg 540
 ccaaactccc anggcagaaa aacagttgg 569

<210> 337
 <211> 547
 <212> DNA
 <213> Mouse

<400> 337
 cacttgcttc acctagccgg cagagcgaga caactgggta actccctgat ccggtctgct 60
 tctccctaca cccagacaac atccttggcc cgcccaatct ctgccaccag cctcgagcgg 120
 atcgacctga gccccgggcc tagcaccgga gggatccggg tggagaagaa tcattgctac 180
 gctccagtcc tggagtctgt tagccagact gtgaggcgca acggattcct aaggctctcc 240
 tggccaggca ggacttctcc cagcactcac gaggaactga ncctggactg gtgtttggag 300

gaacaagtca taacaccgat cgctcccagc acagacttgc cattgcccc acccccaaac 360
 ctactctctc ctgtttcatt cccccagaa cccacagttc ccaaacagtg cacctgcggg 420
 agatctcaac ccagctggag aagtggacat gaggttggca ggccccctgc gcatcgtggc 480
 cctaatacatc attatgggtc tcacctggat cctagtcanc atcctcctag gtggtctggt 540
 gttggnc 547

<210> 338

<211> 573

<212> DNA

<213> Mouse

<400> 338

gggtanaccc gagangacac aacngtacac tgggtacaagg angggcagga ngnggaggaa 60
 agtgacatcn ncnattagg aaatnaaagg gcccancac cgcctggngc nancngcaag 120
 cccggccnc cgggggggc gagntccagn nggaanncag gagangaacg tgcctactnc 180
 acagttaacca ncacggatgn cttcncgtgg gncgncnacc ccagnagcga agngcnnngn 240
 gcagccgnac gccnagagcg tngngngctg accngngagc ngnnccgnc ctaggctgan 300
 gtgcgcngga ccaaaganag gganganag nngnanaaac cancactgcn cctgganaag 360
 ggagacanca nccgccgccn ggngntgccc ncngtccagc ttgangaatc nggcgagnac 420
 ctgtntgaaa nncatgatga gtcggnatct tcancatcac cgtcacanag cccctgtg 480
 ggantnanat anccccagg acgangnaga ccttacacgn cngagantg ggatgtaatg 540
 gngcanacnt gttaagctgt cnanaaagga ngn 573

<210> 339

<211> 508

<212> DNA

<213> Mouse

<400> 339

gtcatcggca ccgtgccagc tagccagtgt tagggtagtgc tcaccctgga cctgtggatt 60
 gtacagaccc agcactttca agagagatgg gatgctgagt ggctgcaaag gttactggga 120
 cccatgcagt gtcgaatcta agccagaatg atacctcttt ctttcacctt gacacagcag 180
 tagccataga tacagatcat actctccttg agcttgaggc cctgtgacat ttggtgggtca 240
 taatcacaaa acagtgttgag aagtctgacc tttcaggacc caggctagcc cattctttgg 300
 gacctctgac cctacaagca cctgcttcat tcttctcttc tggaaagtga ggggtgtata 360
 ggaacatcac ctttgaggac ttagaacttg gcacaggga agaggaggaa ccagccggtc 420
 ctgggaactc aggtgctgt gaaatcgggt actgttgtct ttgaccctg cttttgtctt 480
 cgactatccc atcagtgtga gcagcang 508

<210> 340

<211> 525

<212> DNA

<213> Mouse

<400> 340


```

:gacgttca acaacacact tccgattcac atgatctcgc tgcctaataga ctcgagagagc 60
:gggtgtga acttcatgat ggattacgct caccacaacc cagctgggct ggatgagaag 120
:aggtcgag gccctcttca cagcaatggc gtggagtacg aagcccaggg tgctgagaaa 180
:yccaaccaa aatactttgt gttcaattcc cggacggcct atgcaatccc aatcctggct 240
:tgcttttg tctgccaccc tgaggtectt cccatctaca gcgagcttaa agatcgatcc 300
:gcagaaaga tgcagacggg gtccaacann gncgtctcag gcatgctcgt catgtacctt 360
:tgccggccc tctttgggta tctgagcttc tacggggacg ttgaagacga gctgctgcat 420
:ttacagca aggtctacac atttgatagc gctcttctca tgggtgcgct ggcagtcctg 480
:ggcagtgga cactgaccgt gcccatcgtg gctgttcccg atccg 525

```

210> 341

211> 521

212> DNA

213> Mouse

400> 341

```

acggagggc tctgccttgc cgacagcggc ctctgccggg gcgcgccggg atacacggga 60
ctcactgcg ctaacctatg tccaccggac acttacgggn tcaactgttc ctcccgtgc 120
cctgtgaaa atgccattgc ctgctctccc atcgacggca cgtgcatctg caaggaagg 180
ggcagcgtg gtaactgtc tggtccctgt ccccttgga cctggggcct caattgcaat 240
ccagttgcc agtgtgccca cgacggagtc ngcagcccc aaactggagc ctgtacttgc 300
ccccgggt ggcattgtgc tcaactgcc ctctccctgcc cgaaggacca gtttngtgaa 360
gctgtgccg gtgtctgtna ctgtgaccac tctganggct gngaccngt tcatggacag 420
gccgatgtc aggcnggttg gatgggcnca cgctgccann nggccttgcc cgganntttt 480
gggagccaa cngcagtaac acctgtagct gcaagaatgg t 521

```

210> 342

211> 528

212> DNA

213> Mouse

400> 342

```

aacaggtaa ttctactctc agaacatcag acaaanacct cctggttggc gnagnatcan 60
agttacggc catctctcac tctacaccaa cactaagggt cggttgacta gctgaggcag 120
gggatatct tgggagctgt ccctgtgagg atcatgaatg acggttgncg gtatagagta 180
ttcatttca ntactcaagg aatagtttgc ccaacctgct tattacaccg agttagttaa 240
tttcattcn gtttattttt tgggtatggc aatgttcaaa catctcacta aacatagagg 300
gggttattt ngtnatcat gnaacaacta ccaaaaagta anggttttna acatcngcct 360
ttcatgttg nttctganan ctgtgttcca ctttgtcttt gaacaaggnt tcccctctcg 420
cttcggttc tcaactctncg naattttcag angancacag tccgtgtggn gacacacggg 480
ccagnattg nttgatacat ctctatggga taaaacatgc agtgacgg 528

```

210> 343

211> 529

212> DNA

<213> Mouse

<400> 343

tgtttgccag tcatgatgaa catcattagt aactactatc tttatcattt aaatgtgact 60
 gaagccatcc agacctggag taccctgttc attcaagaaa ttactgacat tgttttttaa 120
 attgagctat attttcaagc agctttgctt ggaatcattg ttactgcaat gccaccttac 180
 tttgccatgg aaaatgcann naatcataag atcaaagctt atactcaact taaactttcg 240
 ggtcttttgc catcagccta ttgggttgga caagctgttg tggatattcc cttgtttttt 300
 gttgttctga ttttgatgct gggaagtta tttgcatttc atcatggctt gtatttnnan 360
 cctgcaaaat tncctgctgt ggtgttttgc ctcatgcnt atgtgcctc cgtcattctg 420
 ttcacgtaca tagcttcgtt cactttcaag aaaattttaa ataccaagga attttgggca 480
 tttatctagt ctgtgancgc attgggcttg tgtgggcaat cacggaaac 529

<210> 344

<211> 528

<212> DNA

<213> Mouse

<400> 344

cagcgncata cagntaaggn gnaggntttg gtttgccgng cactttctaa naccttncnc 60
 ctnccttggn canatcttcc tnagagnngn cagcagnggc cnatgcnntn gatnaaacat 120
 gccacctcn tctctggaca atcncgggac tncncagcc tgangcccag ttgctatgnt 180
 ccccnagat ctgtgcatct tegtganacn anantgatta ttcancancc acnnagtngn 240
 ntngagann nngtngagaa tnnntntggg ggatacaaan gntnncgaca gatntgctac 300
 cnntnactgt aggnanntgn tnatgtctct ctgggantcc tccantcct ntatccatna 360
 gtaaggntgt nantnnaggn aatgttgana ttantcctca cnnngttcga nngcntngnn 420
 aacatccttg ggcggtntnt tnacnnngna gnttatancg ggantttnc ncnnaatggt 480
 ttancagtgn atcnanttgg nngttnaaga accttcatt tnaaggct 528

<210> 345

<211> 568

<212> DNA

<213> Mouse

<400> 345

ggcaacagtg accagagtca ggcttcagaa gccacaggtg gtcgaagggt cncaaaggcc 60
 ctaatggcct ccatggctcg cagantttca angggacca tagccttttg ggncgcagg 120
 gattnaagga ctgggttggc tgctgggct cggagagttt gctctccctg aggtcaccta 180
 gagctcgag aggnaaggnc cgaagaagag ctgcgaagta cagtcatccc aggaacctga 240
 ggnaccccc nccagagat gtagcccttt tacaaggaan ggcaaatgac ttggtgaagt 300
 acctgttggg taaangacca gacaaagatt cccatcngac gncagatat gctgaaagga 360
 catcatcaaa gaaatatacn gatgtatacc ctgaaaatnn ttnaacgagg cagggtatt 420
 tcctttggaa naaagggtat ttttggnan cnaatttgaa agaaanttna caaggtttgg 480
 ccaacntggn nattcttctc cagtacccta gnggncaacn tgntgccagg gaatattttg 540
 ggaacggncc caagggatnc ncctnann 568

<210> 346
 <211> 560
 <212> DNA
 <213> Mouse

<400> 346
 agctagccga ttacgcggat gagcatcacc ctggaatgac ttcctttgga atgtcctcat 60
 ttaacctgag caacgccatc atgggcagtg ggatcttagg cttgtcctat gccatggcca 120
 acaccgggat catccttttt ataatcatgc ngcttactgt ggcaatactc tcgctctact 180
 cggttcacct tttgcngaag acagccaagg aangagggtc tctaattctat gaaaaattgg 240
 gcgagaaagc atttggatgg cctgggaaaa ttggaggctt catctcnatt acaatgcaga 300
 acattggagc catgtcaagc tacctcttca tcattaagta cgaactgcct gaagtaatca 360
 gaggcattca tgggacttgn agaaaaacnct gggggatggg acctcaacgg caactacctc 420
 gtcttanttg tttccgtggg gatcatcctc ccgnaactct cncctttaa aatttaggct 480
 aacctttggg ctaaaaccag tgggtttttc ncgcctcccg gaatgggtgt ttttcgccan 540
 ttntgggtgn attaacaaaa 560

<210> 347
 <211> 541
 <212> DNA
 <213> Mouse

<400> 347
 ggacngtggg ggntgatcac actgctgttt ccaaggaaac ccttcagctg gctgaagcat 60
 ttcggnatcg ctgcaatcat catcgcactc aacaacatcc tggtcaccc cgtgcctacc 120
 atcaaataca tctttggatt cataggggct tcttctgcca ctatgctgat tttcattctt 180
 ccggtgcgt tttatctcaa gctcgtcaag aaagaacctc taagatcacc ccagaagatt 240
 ggggcttttg tcttccttgt gactggaatt attttcatga tgggaagcat ggcgctcatt 300
 atactcgact ggatctacaa cccgccgaat cccaatcacc actaatcccg gggagacgcg 360
 tctccactgg aaacagctga aattgtctga aggacatttt agttgtcttg attgggatgt 420
 tagtctgagg aattagcaag attccaaaga cgtttttcta gctctatcat gggatacttg 480
 tggaagagaa aattatgggt ttgttgggaa tggtttgttg ggaatngtga aggatgcatt 540
 a 541

<210> 348
 <211> 530
 <212> DNA
 <213> Mouse

<400> 348
 gcaacaggca gcttagtggt cccgcgaggc cagccgcagt ttgaatgctc agctctgcag 60
 cggttctgga ccaagttgcc caaagcctac cctcacatcc atcaggctct tttcacccag 120
 gtggatgcac atggcttttc tacggaaagt caatcaagtg ttgctgcttc ttctggctct 180
 gacactctgt gggattctgt acaagaaagt tcataaggga gccgtgctta aggacaaagc 240
 agacgttgat tccgagtcct ccgaggacat ggaagaagag attccagtgg tgatctgtgc 300

agcagcaggg agaatgggtg cagccatggc agccatcaac agcatttaca gcaacaccga 360
 tgctaacctt gtgtttctacg tatgggggct acggagcact tctgnctcga aatacgaaaa 420
 tggatcgaca ttctaaactg agagaantaa acttcaaaat tgtgggggtc aatcctagca 480
 gtcctcaagg gggagnttag gnccagactt cattcgaggg cctgnggctg 530

<210> 349

<211> 543

<212> DNA

<213> Mouse

<400> 349

cctccaagtc tgaccctttc tgtgtccnch ttanagaaga caatggcant tnganggagt 60
 nccncaganc agaaacagcc gtcancaacc tcaaccagc cttctccaag aagttcgtgc 120
 tggactacca cttcgaggag gtgcagaagc tcaagttcgc cctgtttgac caggacaagt 180
 ccagtgcaca gttggatgag catgatttcc ngggccagtn ctctgcagc ctgggnacga 240
 ntgtctccag caagaagatc acnaggcctc tgctgctgat gaatganaag ccagcgggga 300
 agggcgtaat cagcattgca gcccaagagc tgtcagacaa ccgagtcac acactgagcc 360
 tggctggcag gaaactggat aagaaggacc tctttgggaa gtcagaccct tttcttgagt 420
 tttacaagcc aggagatgat ggcaaagga tgctgggtccn taggaccgag gtgattaagt 480
 acaccctgga ancggtgtgg aaaccattca ctgtncgtn ggtgtcttgn gtgatggcga 540
 cct 543

<210> 350

<211> 521

<212> DNA

<213> Mouse

<400> 350

agccttcaac ttctgtctgg tctggtatta ttgcacgctg accatccggg agagcatcct 60
 catcaacaat ggttccagga tcaaaggctg gtgggttttc catcattatg tgtccacatt 120
 cctgtcagga gtcattgtga cctnnccaga tggactcatg taccagaagt tccggaacca 180
 gttcctgtct ttctccatgt accagagctt tgtgcaattc ctgcagtatt actatcagag 240
 cgggtgcctg taccgcctgc gagccctggg cgagcgccat acgatggatc tcaccgtaga 300
 gggcttttcag tcttggatgt ggagaggcct cacccttctg cttccgttcc tcttctttgg 360
 acacttctgg caactcttca atgcgctgac attgtttaac ttggcccggg acccgagtg 420
 caaggagtgg caggtgtcga tgtgcggctt ccccttctc ctctcttcc tcggcaattt 480
 cttcaccacc ctggcgagtg ggtgcatcag aagtttccac a 521

<210> 351

<211> 563

<212> DNA

<213> Mouse

<400> 351

gggtncggct gcagagaact gagacctaga gacagaattt ctgtatctga gcacctactg 60

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gttggggctc cgggaggggc tgggctttgg ggccttaaag aaggtgagga tcagcttcta 120
ggcagaacaa gggatacgac gttcagcggg ctctccactt gaccagggcc ttctctttga 180
actcagcttt gctaggtgaa cttgagacat gtctgacaca agcgagagtg gtgcagatcc 240
agctcgctct cagggcaaaag cttcagaaaa ggacagcggc tccgtgatgc aggacctgtt 300
gaccgtgacc cagaacttgg aggtctcaga aacaccaaag gcagaaaagg caccagaggt 360
ttcagaggct gcaaaggctc caaaagcctc tgggaaccca aaggcgacag aggtctcaaa 420
ggccccagag gcgtctgagg cagctgccac cccaggcctc acctaccaca cagctgagtg 480
agacccaagt tctggcnact gaaaaacaag agtccagcag ctgacaccaa ggacggcaga 540
agtctgacct gcaggctatg aca                                     563

```

<210> 352

<211> 580

<212> DNA

<213> Mouse

<400> 352

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aaattcaagt gttgagctgt gccagtatct ggatgccag gaccaagaag ctttctactg 60
tgtgaagcct ccaaatgtgc cctgtgcagc tctcacctac atgcagtcaa agaacaagga 120
tgtttcctat cttagccaac aagaaaggag cctctttgaa aggtcaaata tagctgtgga 180
gattatggaa aaatccaatg cgattagtgt ctccaaatgc aacacagaca cagctccagt 240
gaaggagaaa tgcaagctcg ggatggatc tgcaatccct agtgggcacg tctggaaaaa 300
cgcatggact cctgcctcct gcagtctggc tccaatcaaa atgaaagact gcctgagggg 360
aaaatttata tatctaattg gtgattccac aatccgccag tggatggaat acttcaaaag 420
caaagtcaac acactgaggt ccgtggacct gcatgagagt gggaaactgc aacaccaact 480
tgccgtggac ttggatgaga aaattcaggc attccagtgg caaaaacatg gttanccnct 540
tatcgggtca ttgggtact ctgtcaaaga aataggggaa                                     580

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<210> 353

<211> 639

<212> DNA

<213> Mouse

<400> 353

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cttctacttt gccatccctg tgggcagtgg tctaggttac attgctggct ccaaagtga 60
agacgtggct ggagactggc actgggctct acgggtgaca ccaggncatg gagtgtggc 120
tgtcctgctg ctgttcctgg tggccagga gcccccaaga ggagccgtgg agcgccactc 180
aggttcacca cccctgagcc ccacctcttg gtgggcagat ctgaaggcac tggcacgaaa 240
tcctagtttc gtectgtctt cccttggett cacctcngtg gcctttgtca cgggctccct 300
ggctctctgg gcccagcgt tctgtctgcg ctcccggtt gttctgggag aagactccgc 360
cctgtctccc tggagattca tgctcttcct ctgacagtct catctttgga ctcactactt 420
gctgactgga agtcngng tggtgggctc ggaatggaaa atcaagccgg ccggcctttg 480
gccngnnttc aancccttcg gggctngnac cacttcgtc ttgtggcaaa ttggnccntc 540
ctgggggttn gggnggccct tttctctct tccctggggn ccctngggcc tnggtggccc 600
cnanagggtg agccaattcn gtggggccaa ccctattnn                                     639

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<210> 354
 <211> 596
 <212> DNA
 <213> Mouse

<400> 354
 tatcaaagca gaatctgaga atacagaatc ntcagagcca ganagacctc ttggccccc 60
 cgcaccnaga caatggagta gacaagacnn cgaggggaaa gaggcttccc aagatgaccc 120
 agctcattgg cntgacnccc aacgccaccc acttacacag gccgccccgg gactgccagg 180
 aactcttcca agaaggggag cggcacagtg gacttttcca gatccagcct ctgggggtctc 240
 caccattttt ggncaactgt gagangactt cagatggagg ctggacagtg attcagagac 300
 gcctgaacgg cncgtgtggac ttcaaccagt cctgggaagc ctacaaggat ggcttcggag 360
 atcccccaagg cgagttctgg ctgggcctgg aaaaagatgc acagcntcac agggaaccga 420
 ggaaagccaa ttggctgtgc anctccagga ctggggatgg cnatgcccaa antgctccca 480
 annttcccca tccantttgg gggggggtga aggacnccag gctaaaangc ctgcaaactg 540
 caactgaagg cccccaccgg gccaatca ncntgggggtg cccnaccaaa tgnntt 596

<210> 355
 <211> 579
 <212> DNA
 <213> Mouse

<400> 355
 aggaggagaa ctcttttgtc actcagactc ttcggaacc tcacctctac gaaggggaca 60
 agnctactgc cccaaagaca acatagagga ggccctcttg ctgctgctca tcagtgaac 120
 catggcaact cgggacgtgg tactgagtcg ggcaccagag caggcggagg accggaaagt 180
 gagcctgcag aatgcttcag ccatttanga cctcngagc atcacgctgg gccggcgagg 240
 ccagtatgtc atgctatcag agngcctaga gcgagccatg aagtgtgctt ttggagaatt 300
 tcaccttngg naaccaagtgg ccctctccat ggtggcttgt gggaaagtcag cctacgccgt 360
 gtcgctgctg cgtgagtgca tgaagttgca gccctcggac cccacggtac ccctgatggc 420
 tgccaaagnc tgcattnggn ccctgcattg gctanaagag gcagaacacn ttncacgggt 480
 antaattggg cttngaaaag gaagctggaa aantccctgc ctaaaagggg taccctgggc 540
 cccnggggcc ttcacctaaa ancctncaag gncaattgn 579

<210> 356
 <211> 527
 <212> DNA
 <213> Mouse

<400> 356
 gattttcttt aatctgctct tctcatcact tccccagctg gtgactgggg tgctggataa 60
 agatgttcca gctgacatgc tgctgagaga gccacagctt tacaagagtg gccaaaacat 120
 ggaggaatac agaccacgag cattctgggt aaacatggtg gatgctgcct ttcaaagcct 180
 ggtatgcttt ttcattccct acctggccta ctatgactcc gatgtggatg tctttacctg 240
 ggggacccct gtcacagcaa tagcactgtt caccttctctg ctgcacctgg gtattgaaac 300
 caaaacctgg acctggctca actggttagc ctgtggcttc agtacctttt tgtttttctc 360

cgtaggctctg atttacaaca cttcctgtgc cacatgctac cctccatcta acccttactg 420
gaccatgcag acattactgg gtgaccctct gttctacttg acttgtctca tcgcacctat 480
tgctgcattg ttgccagat tgttttttca aagccctcca ggggagt 527

<210> 357

<211> 571

<212> DNA

<213> Mouse

<400> 357

gcttctctcc aagcagccgc aggccctctg ccttggagct actgatctgg ccagccatgg 60
gatectctct taggacaact aggccattgc cccctacgcc agcggctttg aggaacctga 120
ggacagggct gaggcagagc cttcaccccc tgtatgggtg tctttccttt tacaagtctc 180
cctggccaca ctccatcccc cagtggacac cagccacgct cactgtgctc cctggggagc 240
actcacagtg cagccccag cccccagaga ttctccaaag gcaataaggg gcagctcagt 300
ggggcacgct gctcaccag gaaacacaaa tccccctccc cctttttttc cttcttttaa 360
aacaacaga aaagaatata tatatatata tatatatata ttttttcatt tagagttgtg 420
cnggaacacg tttgnatggc cacagtctgt ggatttcccc naaacctgt ggggctggag 480
gtcaatgtga agactcagag gggacgtggg gggaanaggg nggcacantt tgggcacgct 540
anattgggac ccagagncat aancgannnt g 571

<210> 358

<211> 558

<212> DNA

<213> Mouse

<400> 358

gaagaccaca gtccgtgtgg agacacacta cccagtattg tttgatacat ctctatttga 60
taaacattca gtgcaggaaa ctgtgatttt gctatatgtt tgtgtacata atctcattct 120
gcagttatca gaacgttgac atatgggaca ttggattttt attttttaca tatgtaggtt 180
tttttttctt cacagacaaa atgtttatat catcaggggtg ggggagggaa ttaagctggg 240
gggctcaaaa atccatgggt acttatctgt ccattggaga catctaaaaa ttaaagtcaa 300
agttgtgcat agttcagtaa tgctcttcac tgtttacaag actataatca tctcagcaaa 360
gtancgaagg aagggtttgt aaataatttt cagtgtctaac aatgggtctt gaatttaaca 420
tgtctagaat anggttagtc catttttagtn tacatcgga acttggtgac attcatttgc 480
cattaacaga acatcngtg gntaggataa atgcaccaac atgacccaaa aaccacattg 540
cncacatcca tggggcgg 558

<210> 359

<211> 555

<212> DNA

<213> Mouse

<400> 359

actgaggatg tgtccctgga cttcggtaat gaagaggagc tggccttttag aaaggccaag 60

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atcaggcacc ccctggctac cttcttccac ctgttcttcc gagtgagtgc catcgtcacc 120
tatgtgtgct gtgactgggt cagcaagagc tttgtgggct gctttgtcac cgtgctcctc 180
ctcctgtcct ttgacttctg gtctgtgaag aatgtaactg gaagactcat ggtgggtctt 240
cgatgggtgga accagataga cgaggatggg aaaagccact ggatatttga agccagaaaag 300
gtctctgcaa accacatggc tgccactgag gcagaggcac gcattcttctg gcttggtctc 360
atcatctgcc cagtgatctg gattgtgttc ttcttcagta ccttggtctc cttgaagctg 420
aagtggctgg ctcttgtgat tgctggcatt tccctccaag ctgcgaacct ctacggctac 480
atcctctgta agatgggagg cgacgggtgat atgcgcacag ttggcagcca gcttttctgt 540
cccagacagt gtttn 555

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<210> 360

<211> 584

<212> DNA

<213> Mouse

<400> 360

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accgaagctc tctggaatca tccaagatc cagctaccac cccaactgct ggagtcctctg 60
tgccatcagg tcccttccgg gttcgtctgg ctgatgggcc caacagggtg gctggccggc 120
tagagggtg gcatgctgga ctctggggaa cagtctgtga tgacagctgg gacatccggg 180
atgccacagt ggctgctgg gagctgggtt gcggaaaggt ccggccccga gtaggcaaaa 240
ctcactatgg ccctggcact gggcccatct ggttggtatga catgggctgt aaaggaaagt 300
agatgtcact gagtgactgc ccctcggggg catgggggaa gcacaaactgt gaccacgaag 360
aagacgtggt gtcacactgc actggctaca cgggtgatga cgattatcct tcctggacct 420
gggaccctac ttccggagan gacctgacca aagggaacca cagtggctgc gggcctgga 480
catacacttt cctgggctac cactacaaac actgaagtcc cctctccagc aacacagaaa 540
cttcagaca cggatgacca nggaggttat gagtcttctt ggac 584

```

<210> 361

<211> 564

<212> DNA

<213> Mouse

<400> 361

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agcctgctga tcagtggcgg ctgcggctga gcttgcaggc atctagtctt gctggctcag 60
caagcccgat aagcatgaag ctgctgtgtt tngtggctgt ggtggggtgc ttgctggtgc 120
ccccagctca agccaacaag agctctgaag atatccggtg caaatgcac tgctccgctt 180
acagaaacat cagcgggcac atttacaacc agaattgtgc tcagaaggac tgcaactgcc 240
tgcatgtggt ggagcccatg ccagtgcctg gccacgatgt ggaagcctac tgcctgctct 300
gcgagtgtag gtacgaggag cgtanaccac aaccatcaag gtcattattg tcatctacct 360
gtctgtggtg ggggccctct tactctacat ggccttctct atgctgggtg accccgctca 420
tccggaagcc agatgcctat actgagcagc tgcacaatga agaggagaat gaggatgctc 480
gcaccatggc aaacagccgc tgcgtccatt ggaggaccgg gggaaaaact gtnctgganc 540
gggttggaag gcgctcaaga agcg 564

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<210> 362

<211> 545
 <212> DNA
 <213> Mouse

<400> 362

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gcaacgggtc ggtgtttggc atccagaacg cctacggggg gcttttcgtg tccatgctgg 60
acaccttcaa ggccaaggac gatgacaaca tggccttcaa gacagcgtgg gtnggctcgc 120
tgtccatggg catgatcttc ttctgctgcc ccatcgtgag tgtcttcacg gacatgttcg 180
gctgccggag aacagctggt gtgggggcag ctgtgggatt cattggactc atgtccagtt 240
cttttgtaag ctccatcgag cctctgtacc tcacctatgg aatcatattt gcctgcggct 300
gctcctttgc ctaccagccg tctactgtca ttttgggaca ctacttcaag aagcgccttg 360
gactagtcaa cggcatcgtc acggccggca gcagcgtctt cacaatcctg ctccctttgc 420
tgtaggaaa tctaatacag agtgtgaagc tctttaacac gctgcggatc ctctgcatct 480
tcagtgttgt tctctttctg ggctggnntt aacctaaccg aacctcttgt tnccaagcac 540
caaag
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545

<210> 363
 <211> 542
 <212> DNA
 <213> Mouse

<400> 363

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cattgatact gttgtcttca aggetcaagc gacagacca gacagtggcc ccaacagcta 60
tattgagtat actctcctga acccttcagg aaacaagttc agcattggga ccattgatgg 120
tgaagtgcac cttacaggag agctggacag agaggaagtt tccaattaca gcctgacagt 180
ggtagccaca gacaaagggc agccacctct gtgcctctct actgaggttg tggttatggt 240
ccttgacatc aatgataaca accctgtttt tgctcaggct atgtaccgag tgcagattaa 300
ggagaacata ctactggaa cagatataat ccaagtgtct gcagcagaca atgatgaagg 360
taccaacgga caggttcgct acggcatcgt gggtaggaac acacatcaag anttcaggat 420
cgactcagtg acagggggcca tcacagtggc taagtctttg gatagagaga cgacctgct 480
tacactttaa cngttcnggc aaaagattcg ggggcaatta gcccagaac ggggctcctg 540
cn
```

542

<210> 364
 <211> 528
 <212> DNA
 <213> Mouse

<400> 364

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ctgggggtgct gtectgtatt cctggggcct ggtgcagctg gtgctgctgg ctgggaagct 60
cnacacattg gctgctgtgg tcaccgtctt ctacttggtg gcttatgctg cggtaggacct 120
gtcttgccctg agtctggagt gggcttcggc ccctaacttc cgcaccacct tcagcctggt 180
ctcctggcac acctgcctgc ttgggggtggc ctctgcctgc tgatgatgtt tctcattagt 240
cctggggggcc gccggggcgg tcccttcttc tcatgggcct gctttccgct cttctcaccg 300
cacgaggagg acccagcagt tgggggttatg tcagccaagc cttgcttttc caccagggtc 360
ggaagtactt gctccgcctg gatgtccgca aggagcacgt aaagtctctg gggcccaagc 420
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tgctggncct ggtggggaaa cccccgggt gccctgcctc tgettcgcct tggncacca 480
gcttaaagaa gggggggacc tctatgtgcc tggggcaatg tcanctct 528

<210> 365
<211> 567
<212> DNA
<213> Mouse

<400> 365
ggccgccctt ttnttntntt nttttnnnt ttngccgaan ccncnaann tnnnanngnn 60
tcnantntnt naaaaanngg gggannnagg nttnatan antgggaana ttngngccnt 120
catnctacn acaatgcaga aaattgnnc cngtcnnac tacctctca ncattancta 180
agnnctgcct ganccaatng gnggggcatn aagacttgan tntnncatgn ggaatggtag 240
ntcaacggca actacctga attatnnng nccnngggga tcatnctccc gcnggggtca 300
aatngaaat tncgnaang tttgcnanac cagtggattn anaanctct ggnaaggggt 360
nttngtcan tgnctgann nacaaanaaa tccngattcc cncnctctg aangctctgg 420
ancgntttna cncnaaatct gncnatntt tccccacgn cgantnanan gntctcgntn 480
gaaaaannac cncngggaan cntggggaaa antccacggn nggttacgnt cnnnaaaanc 540
ccnatggngc nggnngagaa ggcaagt 567

<210> 366
<211> 573
<212> DNA
<213> Mouse

<400> 366
gttgaaggnc attttangtg ncttgattgg gatgttagtc ntngggattn gcaagattcc 60
naagacgttt ttctagctct atcatgggt acntgnngna gagaaaatta tgggtnttgt 120
tgggaatggn ttntttggga atggtgaagg atgcattaaa aattctgtgg nacacatttt 180
anccaggcc gtgcagtga gtgtgtgat cccgagttnn gtttgagca gctgtgcaan 240
gtgnancttg tngntgcgt gtgttggtca gcagacaata nnctgtncce ccatggtcac 300
tcnacttctc tccanncnca gantaacagg taatncnaan cncagaatat cacacaaaaga 360
cctcctgggt ngcgaagtan catcagttac ggccatctct cactctacac cancactant 420
gggtcggttg acnagctgag ttcagggggg natcttnggn ngcnggncct ccnagngggg 480
annatgantn gncgggctng nnangnataa gaggtgnttt caacttgcaa ntactccaag 540
gnntagntt tgnccnact ggnntttatan nga 573

<210> 367
<211> 573
<212> DNA
<213> Mouse

<400> 367
cnttttnang gtcctttcan naaaggccna naatannang tttccananc canccatna 60
tgangatnnn gntgnagntg tcaangcngt nagactnaag gttaaagngc tgnnnggttg 120

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ccagtgttgt gnggagaagc cagccattat ggtngcant ttgcatanag agtatgntgn 180
nnngggngat tttcttctn cnngaannnc aacnggagta gcnnncnaat ncatctcttt 240
ctgtntnaaa aaangtgann ncttgggann nttgggtcca aatnnagetg gcagaannac 300
agtcattanc actctngttg gggcgttga gccanntnn ngcaagnnct ttntaggtc 360
ttntggttca nnttcaagt gagattncga atccattaag tgtatggggn actgtcccca 420
ganaaaccca ctgtggccag atctcactct acaggnannt tttggagatt tcccgagctg 480
tnnaagntct gagtcnccn tgacattaan gnnggtcnnc agtcnaataa caaaagcncc 540
ttgatttcaa anaacntctn cagatggact ggn 573

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<210> 368

<211> 532

<212> DNA

<213> Mouse

<400> 368

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atctggccct gtgacttgtt atttctgacc tgetatctca ggctgatcag ggaacaagaa 60
cgggagctag attgttttcc tgggggttgg ggcgaggagt cccagctgac tgggaagtca 120
gaagtgaagg gatgctcatc gccgagccac actggcactg tgggtggccct cccattcgca 180
cacagaccct ggattgtcat ggtctatgga atgtgggcct gctggttgtt gctgggggcg 240
ccaggcgtgg tcatggctct tctccacagc accatcgctt tctgctggc tcagtccga 300
tccgtgctcc tgcctggct gtgttctctc cttctgctct ccaccctaag gctgcaaagt 360
gtggaggaag ttaagagaag gtggtacaag acagagaacg agtattacct gctccagttt 420
acgctcactg ttcgctgcct gtactacacc agcttcagcc tggagctgtg ccggcagcct 480
ccgtctgcac aacctactcc atctgcgcaa ggtgcctccc attcctancc gt 532

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<210> 369

<211> 510

<212> DNA

<213> Mouse

<400> 369

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aatttcgatg aaatctacna ggatgaggag gacgaggagc gggccctgga atgagcannn 60
gctcgagtac tgcncnnc cgggtggtngt ccgcggtccc ggtcacgtca ccgtatttgg 120
acnnagcaac aaatttnaat cagaattccc ttcttcatta actggaaaag tagctcctga 180
agaattttaa gccagcatca acagagttaa cagctgtctc aggaagaatc ttctgttaa 240
tgtgcggtgg ttgctttgtg gctgcctgtg ctgctgntgc acgttagggg gcagtatgtg 300
gccagttatt tgcctcagta aaannacacg aagancgatt gagaagttat tancatggga 360
naacaatagg ttataccnna agctgtgctt tctactggaga ctgagcnaaa ggaaatgtga 420
aacgnncaac attatgggat atgtcatccn cataggantt ttntccaaag gacaccggtt 480
tttcgancag attagcattt gccttattta 510

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<210> 370

<211> 514

<212> DNA

<213> Mouse

<400> 370

atagcctgct cgttcaatga tttcagggtg ttctttgcag atatgctgaa ggacatcatc 60
 aaagaatagc ctgctcggtc aatggagaag gtatttggaa tccaattgaa agaaattgac 120
 aagaatgacc acttgatat tcttctcagt accttagagc caactgatgc aggcataattg 180
 ggaacgacca aggactcacc taagctgggc ctccatcatg tgcttcttag catcatcttc 240
 atgaatggaa atcgggtccag tgaggggtgag tggatgggca tgcagttgaa taggtagctg 300
 ttgcctgaat tccagatgct caatttctgt ttttgtctcc ttcttgctc ctcttgacgc 360
 tgtcatctgg gaggtgctgc gcaagttggg gctgcgcctt gggatgatt gggctctctc 420
 agcgcttgct gtccgtgttg tctttgggca aagaagagga cgctnccag gattgcatca 480
 gcctggtggg cttgtggact angggggtgg ggga 514

<210> 371

<211> 572

<212> DNA

<213> Mouse

<400>=371

gacacagtgg ggagaccaga gcctacagcc ctttacacag gcagagctgc gagttctgtt 60
 ctgcctcagg cacacgccta ctctctctg agatactgga gtcacttcga ctgaggcaca 120
 agaagaaaac ccgcagcatt cagcagggag ccgcattgat ctgaggctgt gcagtgagga 180
 ggagagggcc agagcatgag gataccccg aaatcctgac tacacggctt ccctcgaaaa 240
 tgctagtaaa gtcagtttgt aacactctgg ccttggggtc acttgtccag cacagcttgg 300
 tgttatgcta ttgtgggtctg acgtgaaatg catctctccc ctcacccaac tttaccccg 360
 aaaaataacc aaaaggttgt ttcttctttt ctgagaaagg ggtgataggc aacagataga 420
 ttttaccaaa tagattttag gtataccaat ctttatttcc tcttaaatta gagaagagtg 480
 aatgttccgt gctaattccag cagtggctgg ctccgggttg ctttccctct gcctcagcgc 540
 tggaggtaga cgtaactgg aacaagnccc tt 572

<210> 372

<211> 540

<212> DNA

<213> Mouse

<400> 372

atttctttct ctctgtttca ctgccaaaat cagacagggc ttcctttcag tgctgtggaa 60
 accagctgcg attttgagat aggcctctgc aacttttatc aagacaaaga gggccgggg 120
 tggaccagag taagagtaaa agcaaactg tatcgggccg gagaccacac gacaggaaca 180
 gggcactacc tgctggccaa cactaagttt acatcccagc ctggctacat cggaagactt 240
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 ggggtttttga aaatgagtga caccctagcc gtttatatct ttgaagaaaa ccatgtgggt 360
 caagagaaga tctggtctgt gtcgagtc ccgaggggtg tttggatgca agcggaaatc 420
 agtttcaaga agcctatgcc cacaaggtg gtttttatga gcctgtgcaa aagcttttgg 480
 gactgtggcc tggtaagccc tggatgacat taccatacaa ctaggaaact gccggtctcc 540

<210> 373
 <211> 520
 <212> DNA
 <213> Mouse

<400> 373
 cacgtgacta caccatcaaa gtccacatga acctgctgtc cgctgtcttc ctgctggacg 60
 tgagcttcct gctcagcgag cctgtggcac tgacgggctc cgaagcagcc tgcgcacca 120
 gtgccatgtt cctgcacttc tccctgcttg cctgcctctc ctggatgggc ctcgagggct 180
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 atgtgaataa ctacggcccc attatcctag ctgtgcgcgc gactccggaa cgtgtcacct 360
 acccctctat gtgctggatc cgggactccc tggtagctta tgtcaccaac ctgggcctct 420
 tcagtctggg gttcctgttc aacctggcta tgcctggcac catgggtgggt cagatcctgc 480
 ggcttcgccc gcacagccag aactggcccc acgtgctgaa 520

<210> 374
 <211> 522
 <212> DNA
 <213> Mouse

<400> 374
 gaggaatgcc aggacagggg gacacagtgc aagtacaagc gtattggctg cccgtggcat 60
 ggccctttcc atgagctgac antgcatgaa gctgcgtgtg ctaccccgac caagacaggc 120
 aacgagctga tggagatcct cgcagagatg gaccagagcc accgcaagga gatgcagctc 180
 tacaacagca tcttcagcct gctcagcttt gagaagatcn gctacacaga agttcagtn 240
 cggccttacc gactgatga cttcatcaca cgctgtact atgaaacacc acggttcaca 300
 gtactgaacc agacatgggt cctgaaggct cgtgtgaatg actcggagcg caaccccaaa 360
 cctgtcgtgc aancgcanac tttccttcca nctactctc aagagcaagg tcacagcacc 420
 cctggaatnc tcttttcttc tgcctaaggg nccatacgac gangtgagga tcagtcctgt 480
 tatctaccan tttgtcttca ccaaangana gcaatgaaga cc 522

<210> 375
 <211> 580
 <212> DNA
 <213> Mouse

<400> 375
 catgacctcc tgtaccacca gctggacata gacaagtacg accaccacga gtttcctgga 60
 gttgttccca ggacgttcct cgggcccgtg gtgatcgag cgttctccag ccccggtggt 120
 tatgtgctct cgcttttaga agtatccaaa ttttattctc agctgatagt cagaggagtc 180
 cttgggcttg gtgtgatttc tggactctgg acattacaaa aggaagttag acagcagttc 240
 ggagccacgg tggctgtcat gttctgctgg atatcagcca cacagtttca tctcatgttc 300
 tactgtacga ggacactccc caacgtgttg gccctggctg tggctctacc agccctcaca 360
 gcctggctgc agcggaggtg ggccctgttt gtctggctct cagccttcgt catnattggc 420
 ttcagggctg actggccatg ctgctgggga ttgcgctgct gctgacctg taccaaagaa 480

gactgacggg gggccanant gctccgacac gncatcccag nagggcttct ctgtntaagg 540
 cttanggttg cnttggactc ctaatttttg ggaanacctt 580

<210> 376
 <211> 552
 <212> DNA
 <213> Mouse

<400> 376
 gcatcttgaa caaagaaaac caagatgatg atggcttctg ggaaggggag ttcagtgggc 60
 gaatcgggtg tttcccatcg gtgctagtgg aagagctctc agcctccgag aatggcgaca 120
 ctccatggac aagagagatc cagatctctc catcccccac gcctcacaca tccctgcctc 180
 cactgcctct gtatgaccag ccacccagca gcccgatcc cagtccagat aagaggagct 240
 cccagttctt cccccgggtc ccttcagcca atgaaaacag ccttcagtct gaatcaccag 300
 gattctcaca ggctcaaga cagactcctg acacctcata tggcaagctg cggcctgttc 360
 gggcggggcc gccaccaccc acacagaacc accggcgag aactgagaag atggaggacg 420
 tggagatcac actgggtgtga cagtggattt accttccgtt actgctacaa tcaagggcca 480
 ggcttggagt ttggccagtc tcattttttt agggactttg catgatgatg actcttgaaa 540
 ngagcaaaac cn 552

<210> 377
 <211> 567
 <212> DNA
 <213> Mouse

<400> 377
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 gatatggaag aagaggagga gngngaagag gncattgacc acctggtgaa gttgcaccgc 120
 cagaaactgg ccagaggcag catgcagagt ggctcctcca tgagtaccct tggcagcatt 180
 annagtatct atagcgaant ggtgattttg ggaacatctc tgtgacgggc aagattgcct 240
 tttcactgaa gtttgagcag aaaacacaga ctttggtcat ccatgtcaag gagtgccacc 300
 agctggccta tgctgatgaa gccagaagc gttctaacc atagtgaag acttatcttc 360
 tgcctgacaa gtcccgccaa ggagaaagan aaaccagcat caagcgggac accatcaatc 420
 cactanatga tgagacctt cggtacgaga ttctcggaatc tcttctgget cagaggntt 480
 tgcagtttct cgtttggtcat catggtcgtt ttggcagaaa acactttccn tggaganngc 540
 ggangtncca catggactct tgggnagn 567

<210> 378
 <211> 567
 <212> DNA
 <213> Mouse

<400> 378
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tttccttata gatgcacatc ccaactctta cagcttcctg ggtgtggacc agctgcagca 180
tgctacactg gcagatttgg tggaaatca caaggaggag cccataacct ctctggggaa 240
ggaactcctt ctgtaccctt gtggtcaaca agacaagctg cccgactacc tggagctctt 300
ccagtgcaca ctctcatcca gatcagcctc caacttccag ctggtttccc ctctggacag 360
acacctctga gatggacatt tgtgtgtgat gccaaaatct ctctgtgaca gagccaacag 420
tgaacaacgt ctgaggtctt cattgaaacc tctcttctgc ataaatgctg gattcagttt 480
aaggggtgtg tacctctctc tcatcctcat tctgaaagga aaaaggggga aggtaccac 540
atttgaaca tcctaatatg gaaggnn 567

```

<210> 379

<211> 570

<212> DNA

<213> Mouse

<400> 379

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canegnangg ccanctgnaa gcccgnaacc acaccagca tccnccaca cccatccagc 60
ccccatcagc anccccaccg cacntctttt gcaagtttac agaaacagaa acgcacaggg 120
ttcctctcgg gttgccacac agagactcac tgcttctaga aggacccgag tcctctcggg 180
acctacactt tgggaccgtg gatttctgct tctccagatt tcgtgccgac atcttgtcca 240
gcccttccca cagttctcct cncgtctcct cattgttgtg gcttctctct ctntccctct 300
cagaactatg gnaacacgaa cancagttgt cttcacttgt tagataccca gtcctgaaa 360
tcgttttncn aactgacgct ccgctcacgc tgtctgcac tttttagaag annagtaaat 420
aatcttgaat tgatatnntt antntgcttt acaganaaaa ataaggggtc aggaaaaaaa 480
aaaggtttat aaaaatntgn cantttgggn taaataggcc cccggggaaa tcccttttng 540
ganacagggt tgggtnnac cngccccata 570

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<210> 380

<211> 576

<212> DNA

<213> Mouse

<400> 380

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tggaggagca actccgaggg cagctgtccc ttccctggan cagggtttct gaggccacag 120
gctcatcttc caataccccc gaggaacag ntgacgttga caattccagc ctcagcgtcc 180
cttctttggg tatgatggca tcgtgcccag gggctgcctc ctctccantc ttcacgggac 240
atggagcagc acagccatcc accagtggga gacaggaggc tgactcctcg tcagaggctt 300
gcacaggccc acagacacc cagaacgcta cagagacttc atggaaaatt gagatcaatg 360
aagccaaaag gagactgatg gagaacatcg tactctacaa agaagagaga ctggacagca 420
gcgagctctt tggaccctga ttaccagcgc acagtgaaga cccttattct cnactgganc 480
agacaaacgt ccaggcaggg aagaggtctt tngctgccc aggtctgttg agaccacac 540
aaccctaaac attcagcttg aagcagaagg aaacat 576

```

<210> 381

<211> 588

<212> DNA

<213> Mouse

<400> 381

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cgacattctc cagtgggatt tccatgactc cttctttaac ctgacgctta agcagggtcct 60
tttcctggag tngnagcnaa ccnactgtac cancgccagc ttcgtgctca atggggacga 120
cgctggcggtt ggtacagtag gttagctgcc actccaggaa aaggaccngg accaacacct 180
cttcgtgggg cacctgatcc agaacgtggg tcccatccgg gtgccctgga gcaagtactt 240
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cctgctgtcg cgttttaccg tggccgccct acgtcgcgcc gcgcgcgtcc tccccatgtt 360
cccaatcgac gacgtgttcc tgggcatgtg tctgcagcag cagggctctgg ctcccgggac 420
gcacagcggg gtnggcantg cgggggtttt cccccctang gccangtgtg tcatcttcga 480
nccctgggtt taccngnanc tggttcntgg tgaacggttt tctggccttn gagatgctgt 540
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<210> 382

<211> 558

<212> DNA

<213> Mouse

<400> 382

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gacgctgcca gacggaagga ccattaagta ctggactgct gccaaactcg gggggccatg 180
gtggggtgaa aggggccact tccggatcgt gcgtggcacc aacgagtgcg acatcgagac 240
cttcgtgctg ggcgtctggg gtgcgtggg aatggaggac atggggcacc actgagtctc 300
agccactagg cgaggtggga tccacagcca cagaagaggc cttggggggc atgcccgatg 360
aagccttgtg tgcacttcgg gaccaggtgc taatctctac agactcagat ccgcgcgtgc 420
gcgnaaggc anaatccac ctaggagaca aagatgcacc agggctggcg gaagcccca 480
gatattcaca gccgggaaac tgggaanggc cctgtttgga aaatgcaggg agtatagaca 540
gattccangn ccctgggt 558

```

<210> 383

<211> 579

<212> DNA

<213> Mouse

<400> 383

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gtgtgcgcac cagggttccg agggccctcc tgccagaggc cctgcccgcg tggctcgctat 120
ggcaaacgct gtgtgcaatg caagtgtaac aacaaccatt cttcctgcca cccatcggac 180
gggacctgct cctgcctggc gggctggaca ggccctgact gctccgaggc atgtcccca 240
ggccactggg gactcaaatg ctcccaactc tgccagtgtc atcatggtgg gacctgccac 300
ccccaggatg ggagctgtat ctgcacgcca ggctggactg gacccaactg cttggaaggc 360
tgccaccaca gaatgtttgg tgtcaactgc tccagctat gtcagtgtga tctcggagan 420
atgtgncacc cagagactgg ggcttgtgtc tgtnccccag gacacagtgg tgcagactnc 480

```


aaaatgggaa gncaaggngt ccttcacat aatgccacc tcttccgtga cccataactc 540
actgggtgca ntgattgna ttnantaact gggaacccc 579

<210> 384
<211> 496
<212> DNA
<213> Mouse

<400> 384
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gnggcaggcg gttnnatca tattcacana cgactccgct cgnancttca cttgngactc 120
agantggag gcagaagant ngtacaagnc actgtccgtn gaatgnctgg gatcacngnt 180
caatgacatc agnctgggag agnctganct cctggtcca ggagtanagt gtgagcagan 240
agatcgcttc aangtcttcc tgnaccctg cccaacctg gacgtgtatg gggagtgcaa 300
nctgnagntn antcacgaga acatctacct ctnggacata cacaancccc gcgtgaagct 360
cgtctcgtgg cccctctgct ctntgcgccg ttataggcga nntgctaacg gcttttacct 420
tttaaggcgg gcacgatgta tgacgctggg ngaaatgggc tctaanaacn tttcagaaaa 480
caaggtnngg gagcag 496

<210> 385
<211> 491
<212> DNA
<213> Mouse

<400> 385
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ggccgttggt actactataa ccgcacaacc caggagcgaa cctggaaacc acctcgatgg 180
gtcagatag tgagcacaag ccgagatctt cagagccag gagagcaaga gcctctttca 240
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cccaggggtt ggtcagaaga gctggatgaa cgtgggcata ccttgatata cagtactat 360
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agnggaatta t 491

<210> 386
<211> 3164
<212> DNA
<213> Mouse

<400> 386
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cctcccgtct ctagtgggtt tctccacttt gctgaattgt tctacacac aaaactgcag 120
caagacaacg tgtctcccca atgccaaagt cgaagtgcac aatggtgtgg aagcctgctt 180
ctgcagccag gggactctg ggaatggtgt cacgatttgt gaagatatag atgagtgcag 240

cgagtcttct gtctgcggcg atcatgctgt gtgtgaaaac gtgaacgggg gcttcagctg 300
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 ctcttactgc caagatatag atgagtgcag cgagtcttct gtctgcggtg atcatgctgt 420
 gtgtgaaaac gtgaacgggg gcttcagctg cttctgcagg gaagggtatc agaccgccac 480
 ggggaagtca cagttcacac ctaatgatgg ctcttacygc caagaaagca tgaattcaaa 540
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 acccataaca gaacagacaa ctttactcca agaaatctac agaaattctg aggctgagct 660
 ctctctgatg gatatagtca catacataga gatcctaact gaatcatcct cactactagg 720
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 ttaagacttc aaatatgtag tcagtaaaac atagatttgt caaagtataa tactgtttat 3060
 gtcttttagtg aaaagaatgt gtgcagtatt ttgtctataa ttttttactg ttatgaaaaat 3120

taccttttaa tattaaatca gtataactga aaaaaaaaaa aaaa

3164

<210> 387

<211> 996

<212> DNA

<213> Mouse

<400> 387

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 atcccaaaat tgatgatcat catcttcgga ctggcggac tgatgggaaa cgccattgtg 180
 ttctggctcc tgggcttcca cttgcgcagg aatgccttct cagtctacat cctaaacttg 240
 gccttggtg acttcctttt cctcctcagt agtatcatag cttccaccct gtttcttctc 300
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 tacatcacag ggataagcat gctcagtgcc atcagcactg agtgctgcct gtctgtcctg 420
 tgccccacct ggtatcgctg ccaccgtcca gtacatacat caactgtcat gtgtgctgtg 480
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 accagatatg ataatgacaa tgagtgtctg gcaactaaca tctttaccgc ctctgacatg 600
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 ggcgctgggc agatgaagct taccagattt catgtgacca tcttgctgac ccttttggtt 720
 tttctcctct gcgggttgcc ctttgtcatc tactgcatcc tgttattcaa gattaaggat 780
 gatttccatg tattagatgt taatctttat ctagcattag aagtcctgac tgctattaac 840
 agctgtgcc accccatcat ctacttcttc gtgggtctt tcagacatca gttgaagcac 900
 cagaccctca aaatggttct ccagagtgc ctgcaggaca ctctgagac agctgaaaac 960
 atggtagaga tgtcaagtaa caaagcagag ccttga 996

<210> 388

<211> 331

<212> PRT

<213> Mouse

<400> 388

Met Gly Glu Ser Asn Gly Glu Ala Phe Leu Ala Phe Lys Thr Ser Ala
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 Ser Pro Thr Ala Pro Val Thr Thr Asn Pro Met Asp Glu Thr Leu Pro
 20 25 30
 Gly Ser Ile Asn Ile Arg Ile Leu Ile Pro Lys Leu Met Ile Ile Ile
 35 40 45
 Phe Gly Leu Val Gly Leu Met Gly Asn Ala Ile Val Phe Trp Leu Leu
 50 55 60
 Gly Phe His Leu Arg Arg Asn Ala Phe Ser Val Tyr Ile Leu Asn Leu
 65 70 75 80

Ala Leu Ala Asp Phe Leu Phe Leu Leu Ser Ser Ile Ile Ala Ser Thr
85 90 95

Leu Phe Leu Leu Lys Val Ser Tyr Leu Ser Ile Ile Phe His Leu Cys
100 105 110

Phe Asn Thr Ile Met Met Val Val Tyr Ile Thr Gly Ile Ser Met Leu
115 120 125

Ser Ala Ile Ser Thr Glu Cys Cys Leu Ser Val Leu Cys Pro Thr Trp
130 135 140

Tyr Arg Cys His Arg Pro Val His Thr Ser Thr Val Met Cys Ala Val
145 150 155 160

Ile Trp Val Leu Ser Leu Leu Ile Cys Ile Leu Asn Ser Tyr Phe Cys
165 170 175

Ala Val Leu His Thr Arg Tyr Asp Asn Asp Asn Glu Cys Leu Ala Thr
180 185 190

Asn Ile Phe Thr Ala Ser Tyr Met Ile Phe Leu Leu Val Val Leu Cys
195 200 205

Leu Ser Ser Leu Ala Leu Leu Ala Arg Leu Phe Cys Gly Ala Gly Gln
210 215 220

Met Lys Leu Thr Arg Phe His Val Thr Ile Leu Leu Thr Leu Leu Val
225 230 235 240

Phe Leu Leu Cys Gly Leu Pro Phe Val Ile Tyr Cys Ile Leu Leu Phe
245 250 255

Lys Ile Lys Asp Asp Phe His Val Leu Asp Val Asn Leu Tyr Leu Ala
260 265 270

Leu Glu Val Leu Thr Ala Ile Asn Ser Cys Ala Asn Pro Ile Ile Tyr
275 280 285

Phe Phe Val Gly Ser Phe Arg His Gln Leu Lys His Gln Thr Leu Lys
290 295 300

Met Val Leu Gln Ser Ala Leu Gln Asp Thr Pro Glu Thr Ala Glu Asn
305 310 315 320

Met Val Glu Met Ser Ser Asn Lys Ala Glu Pro
325 330

<210> 389

<211> 1037

<212> PRT

<213> Mouse

<400> 389

Arg Gly Gly Thr Leu Ala Ser Ser Ala Leu Pro Pro Ala Pro Arg Leu
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Pro Met Arg Leu Leu Pro Leu Leu Val Gly Phe Ser Thr Leu Leu Asn
 20 25 30

Cys Ser Tyr Thr Gln Asn Cys Ser Lys Thr Thr Cys Leu Pro Asn Ala
 35 40 45

Lys Cys Glu Val His Asn Gly Val Glu Ala Cys Phe Cys Ser Gln Gly
 50 55 60

Tyr Ser Gly Asn Gly Val Thr Ile Cys Glu Asp Ile Asp Glu Cys Ser
 65 70 75 80

Glu Ser Ser Val Cys Gly Asp His Ala Val Cys Glu Asn Val Asn Gly
 85 90 95

Gly Phe Ser Cys Phe Cys Arg Glu Gly Tyr Gln Thr Ala Thr Gly Lys
 100 105 110

Ser Gln Phe Thr Pro Asn Asp Gly Ser Tyr Cys Gln Asp Ile Asp Glu
 115 120 125

Cys Ser Glu Ser Ser Val Cys Gly Asp His Ala Val Cys Glu Asn Val
 130 135 140

Asn Gly Gly Phe Ser Cys Phe Cys Arg Glu Gly Tyr Gln Thr Ala Thr
 145 150 155 160

Gly Lys Ser Gln Phe Thr Pro Asn Asp Gly Ser Tyr Xaa Gln Glu Ser
 165 170 175

Met Asn Ser Asn Cys His Leu Glu His Ala Cys Ile Ala Ala Asn Ile
 180 185 190

Asn Lys Thr Leu Lys Arg Ile Gly Pro Ile Thr Glu Gln Thr Thr Leu
 195 200 205

Leu Gln Glu Ile Tyr Arg Asn Ser Glu Ala Glu Leu Ser Leu Met Asp

210	215	220
Ile Val Thr Tyr Ile Glu Ile Leu Thr Glu Ser Ser Ser Leu Leu Gly		
225	230	235 240
His Pro Asn Ser Thr Thr Ser Tyr Lys Asp Ala His Phe Asn Ser Thr		
	245	250 255
Leu Thr Glu Phe Gly Glu Thr Ile Asn Asn Phe Val Glu Arg Ser Thr		
	260	265 270
His Lys Met Trp Asp Gln Leu Pro Thr Asn His Arg Arg Leu His Leu		
	275	280 285
Thr Lys Leu Met His Thr Ala Glu Leu Val Thr Leu Gln Ile Ala Gln		
	290	295 300
Asn Ile Gln Lys Asn Ser Gln Phe Asp Met Asn Ser Thr Asp Leu Ala		
	305	310 315 320
Leu Lys Val Phe Ala Phe Asp Ser Thr His Met Lys His Ala His Pro		
	325	330 335
His Met Asn Val Asp Gly Gly Tyr Val Lys Ile Ser Pro Arg Arg Lys		
	340	345 350
Ala Ala His Gly Thr Thr Gly Asn Val Val Val Ala Phe Leu Cys Tyr		
	355	360 365
Lys Ser Ile Gly Pro Leu Leu Ser Ser Ser Asp Asn Phe Leu Leu Asp		
	370	375 380
Thr Gln Asn Asp Asn Ser Glu Gly Lys Glu Lys Val Ile Ser Ser Val		
	385	390 395 400
Ile Ser Ala Ser Ile Ser Ser Asn Pro Pro Thr Leu Tyr Glu Leu Glu		
	405	410 415
Lys Ile Thr Phe Thr Leu Ser His Val Lys Xaa Ser Asp Lys His Arg		
	420	425 430
Thr Gln Cys Ala Phe Trp Asn Tyr Ser Val Asp Ala Met Asn Asn Gly		
	435	440 445
Ser Trp Ser Thr Glu Gly Cys Glu Leu Thr His Ser Asn Asp Thr His		
	450	455 460
Thr S r Cys Arg Cys Ser His Leu Thr His Phe Ala Ile Leu Met Ser		

465		470		475		480
Ser Thr Ser Ser Ile Gly Ile Lys Asp Tyr Asn Ile Leu Thr Arg Ile						
	485		490		495	
Thr Gln Leu Gly Ile Ile Ile Ser Leu Ile Cys Leu Ala Ile Xaa Ile						
	500		505		510	
Phe Thr Phe Trp Phe Phe Ser Glu Ile Gln Ser Thr Arg Thr Thr Ile						
	515		520		525	
His Lys Asn Leu Cys Cys Ser Leu Phe Leu Ala Glu Leu Val Phe Leu						
	530		535		540	
Ile Gly Ile Asn Ile Asn Thr Asn Lys Leu Val Cys Ser Ile Ile Ala						
	545		550		555	560
Gly Leu Leu His Tyr Phe Phe Leu Ala Ala Phe Ala Trp Met Cys Ile						
	565		570		575	
Glu Gly Ile His Leu Tyr Leu Ile Val Val Gly Val Ile Tyr Asn Lys						
	580		585		590	
Gly Phe Leu His Lys Asn Phe Tyr Ile Phe Gly Tyr Leu Ser Pro Ala						
	595		600		605	
Val Val Val Gly Phe Ser Ala Ser Leu Gly Tyr Arg Tyr Tyr Gly Thr						
	610		615		620	
Thr Lys Val Cys Trp Leu Ser Thr Glu Asn Asn Phe Ile Trp Ser Phe						
	625		630		635	640
Ile Gly Pro Ala Cys Leu Ile Ile Leu Val Asn Leu Leu Ala Phe Gly						
	645		650		655	
Val Ile Ile Tyr Lys Val Phe Arg His Thr Ala Gly Leu Lys Pro Glu						
	660		665		670	
Val Ser Cys Tyr Glu Asn Ile Arg Ser Cys Ala Arg Gly Ala Leu Ala						
	675		680		685	
Leu Leu Phe Leu Leu Gly Thr Thr Trp Ile Phe Gly Val Leu His Val						
	690		695		700	
Val His Ala Ser Val Val Thr Ala Tyr Leu Phe Thr Val Ser Asn Ala						
	705		710		715	720
Phe Gln Gly Met Phe Ile Phe Leu Phe Leu Cys Val Leu Ser Arg Lys						

	725		730		735
Ile Gln Glu Glu Tyr Tyr Arg Leu Phe Lys Asn Val Pro Cys Cys Phe					
	740		745		750
Gly Cys Leu Arg Thr Met Arg Ser His Asp Asn Tyr Ser Cys Asn Glu					
	755		760		765
Met Lys Ile Pro Arg Phe Arg Pro Val Trp Gln Lys Met Ser Leu Phe					
	770		775		780
Leu Leu Leu Val Ile Asn Phe Lys Ser Ile Phe Leu Phe Thr Val Glu					
	785		790		795
Met Leu Met Asp Lys Ile Met Asp Gln Arg Ala Thr Val Cys Phe Leu					
	805		810		815
Thr His Ser Arg Tyr Val Lys Asn Ser Thr Ala Asp Ile Trp Lys Val					
	820		825		830
Ile Gly Phe Ser Gly Val Ile Ser Leu Cys Pro Arg Lys Asp Phe Phe					
	835		840		845
Leu Thr Arg Glu Ile Tyr Glu Cys Pro Gln Gly Asn His Trp Leu Asp					
	850		855		860
Ile Phe Val Thr His Val Ala Phe Gln Thr Ser Ser Leu Pro Pro Val					
	865		870		875
Pro Leu Gln Glu Gly Glu His Lys Arg Arg Gly Gly Ala Glu Tyr Glu					
	885		890		895
Ala Val Thr Lys Ala Ser Leu Thr Arg Asn Cys His Ser Asn Lys Leu					
	900		905		910
Ser Phe Ser Lys Leu Asp Glu Lys Ile Ser Arg Asn Asn Glu Lys Gly					
	915		920		925
Asn Ile Ser Gln Phe Gly Asn Trp Ser Glu Val Lys Ser Pro Arg Ser					
	930		935		940
Lys Phe Ala Thr Ser Met Phe Phe Leu Thr Leu Leu Lys Pro Glu Lys					
	945		950		955
Ser Leu Thr Thr Asp Ile Ile Arg Asp Gly Cys Ser Tyr Thr Asn Ile					
	965		970		975
Arg Phe Glu Cys Lys Met Phe Ser Phe His Thr Asp Asp Phe Lys Tyr					

980

985

990

Val Val Ser Lys Thr Ile Cys Gln Ser Ile Ile Leu Phe Met Ser Leu
995 1000 1005

Val Lys Arg Met Cys Ala Val Phe Cys Leu Tyr Phe Thr Val Met Lys
1010 1015 1020

Ile Thr Phe Tyr Ile Ser Ile Leu Glu Lys Lys Lys Lys
1025 1030 1035

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/04700

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12N 15/11, 15/63, 15/70, 15/82; C07K 14/00

US CL : 536/23.1; 435/320.1, 455, 468; 530/300, 350

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 536/23.1; 435/320.1, 455, 468; 530/300, 350

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
STN, EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y,P	PHILLIPS et al. The genetic program of hematopoietic stem cells. Science. 02 June 2000, Vol. 288, pages 1635-1640, entire document.	1-17
Y	LELIAS et al. cDNA cloning of a human mRNA preferentially expressed in hematopoietic cells and with homology to a GDP-dissociation inhibitor for the rho GTP-binding proteins. Proc. Natl. Acad. Sci. USA. February 1993, Vol. 90, pages 1479-1483, entire document.	1-17
Y	MIRAGLIA et al. A novel five-transmembrane hematopoietic stem cell antigen: Isolation, characterization, and molecular cloning. Blood. 15 December 1997, Vol. 90, No. 12, pages 5013-5021, entire document.	1-17
Y	MOORE et al. Hematopoietic activity of a stromal cell transmembrane protein containing epidermal growth factor-like repeat motifs. Proc. Natl. Acad. Sci. USA. April 1997, Vol. 94, pages 4011-4016, entire document.	1-17

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" documents which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"A"

document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

27 JUN 2001

Name and mailing address of the ISA/US

Commissioner of Patents and Trademarks
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/04700

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: 1-17, SEQ ID NOs:386-389
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/04700

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING: This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claims 1-17, drawn to nucleic acid molecules, vector molecules and host cells containing said nucleic acids and polypeptides.

Group II, claims 18 and 19, drawn to antibodies.

The inventions listed as Groups I-II do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I encompasses nucleic acids, polypeptides expressed thereby, vectors and host cells containing same, respectively. Group II, however, is directed to an antibody, which antibody undergoes recognition and binding reactions wherein what is bound is different from what is bound by the compositions of Group I. For example, the polypeptides of Group I do not bind the polypeptides of Group I as the antibody of Group II does. Thus, in summary, each of Groups I-II is directed to different special technical features and thus supports this lack of unity.

Additionally, some claims are directed to more than one invention including more than one sequence, which are deemed to lack unity of invention because they are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for more than one invention to be searched, the appropriate additional search fees must be paid. These inventions are as follows: For Group I, the claims include a series of polynucleotides and/or the polypeptides encoded thereby as represented by the sequences of SEQ ID Nos: 1-389. Each of these polynucleotide sequences encodes a separate polypeptide and thus represents a separate gene. Therefore, each of these genes defines its own special technical feature. For Group II, the antibodies are against two different proteins with sequences of SEQ ID NOs: 388 and 389, and each of the proteins, thus each of the antibodies, has its own special technical feature. In summary, for Group I, one invention is a gene represented by one polynucleotide sequence and one polypeptide sequence encoded thereby, or only the polynucleotide sequence where no polypeptide sequence encoded thereby is claimed, or the polypeptide sequence where no polynucleotide sequence encoding the polypeptide is claimed, and for Group II, one invention is an antibody against a protein with the sequence of either SEQ ID NO: 388 or SEQ ID NO: 389.

During a telephone conversation with IRVING FEIT, AND LAUREN EMR, applicants elect to pay for searching an invention: Group I encompassing claims 1-17 and SEQ ID NOs: 387 and 388 in addition to Group I encompassing claims 1-17 and SEQ ID NOs: 386 and 389. Accordingly, Group I encompassing claims 1-17 and SEQ ID NOs: 386-389 are searched.